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AMIGA WORLD

September 1992
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—p. 16

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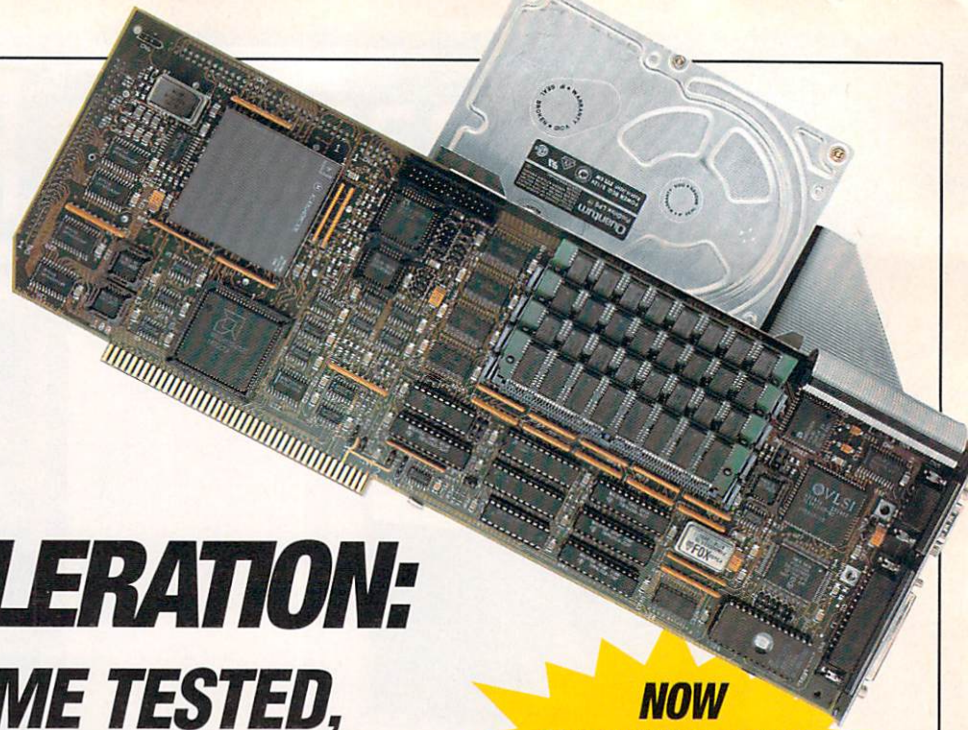
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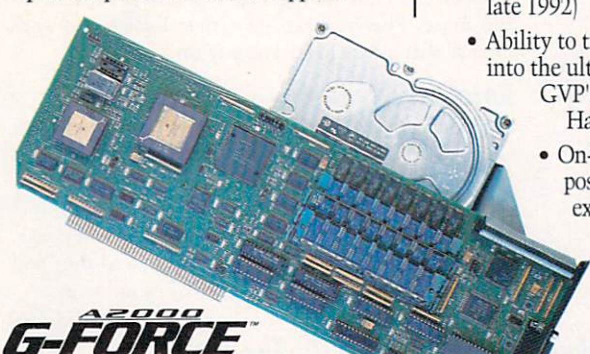
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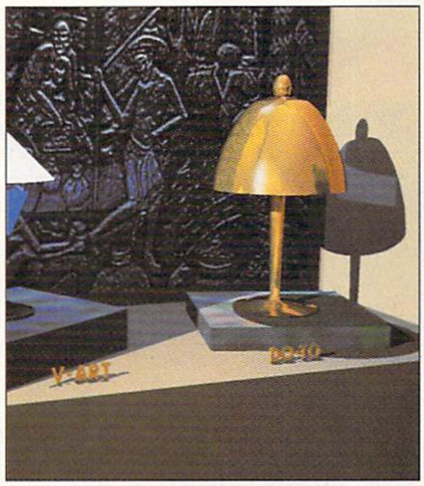
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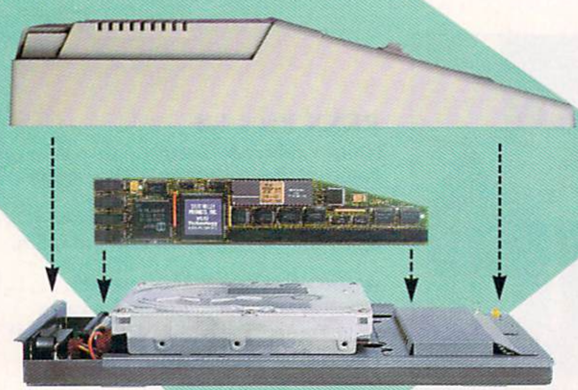
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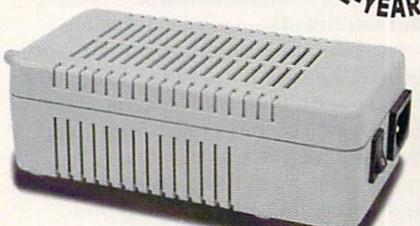
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CHIEF CONCERNS

Choosing our direction.

A TYPICAL ISSUE of *AmigaWorld* has a column on graphics, another about video, and feature articles and reviews covering, perhaps, animation, music, and multimedia. Then there's always a half-baked editorial and a dash of productivity or programming.

Just look at this current issue, whose theme is 3-D animation. It is bursting with tips and techniques for creating top 3-D images.

For a long time we've thought this was quite a good formula. Now I'm not so sure.

As is often the case, a few letters to the editor and some of the usual on-line R&R (ranting and raving) jostled me from my complacency. There are a fair number of people who dislike the heavy emphasis on specific uses of the machine. They complain about our coverage of $1000+ graphics boards, ultra-complicated video-production systems, and graphics, graphics, graphics.

"Heck. We just want to compute, not create Terminator 4!" they tell us. "Besides. I can barely afford to keep my Chevette running."

We aren't supposed to help you with your Chevette, but we should make your Amiga computing easier. But how?

There are several possible paths to take: We can focus on what makes the Amiga hot—animation, video, sound, and multimedia—or we can incline towards broader system coverage, AmigaDOS, hardware upgrades, productivity tips, setting up your system, and the like. Or we could do something smart, like combine the two.

Now here's where it gets tricky. If we beat animation, video, and so on to death, we may lose readers who view their Amigas as general-purpose computers. These are the folks most easily seduced by cheap clones. Of course, with Lotus 1-2-3 selling for $595 and some databases at $795, you have to file Chapter 11 before your hard drive is even half-full. So keep that in mind.

If we go for the broad-based approach, we may lose a chance to capture new desktop-video, animation, and multimedia users. And we lose a certain amount of sizzle.

But here you can argue that even an animator needs to know about the innards of the hardware and operating system and needs to use productivity software from time to time.

This is the catch: We can't do two magazines. We tried that with the *AmigaWorld Tech Journal*, but the market couldn't support it, so it no longer exists. Nor can we simply double the size of AmigaWorld. Since we print about 160,000 copies, all those extra pages add up to lots of bucks and lots of trees. Wasting trees our company can live with; the bucks, unfortunately, it can't.

So we need to choose a direction. We could coop ourselves up in some conference room somewhere with some stale donuts and old coffee to decide what is best for you the reader. That would be the lazy solution, and we stand about a 50% chance—maybe more—of being dead wrong.

Or we could ask you what you want. Hey, now there's some fancy thinking. Give the people what they want!

We already are working on a telephone survey, and our annual mail survey of about 1000 readers will press for answers to this question. We've also recently done a couple of on-line surveys, one of which helped us to reshape the reviews section. And every month through our reader service cards we survey readers' interest in particular topics.

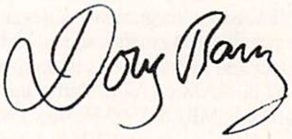
But I'm far from satisfied. I wouldn't mind some fairly spontaneous reactions, along with reasons why we should choose one direction over the other, or mix them both.

If you care what runs between the covers of *AmigaWorld*, drop me a line, or give a quick call. Tell me what you think and why.

Feel free to go beyond the basic question of broad versus specific application coverage. Tell us if you like our style, our tone, our design. You can even critique our photographs. I've heard complaints that mine is so small and dark that it is almost impossible to draw a good mustache on it.

We'd also like to know if the technical level of the magazine is appropriate. For some, our jargon is as incomprehensible as a Dan Quayle speech. Others like to probe the deepest levels of Intuition, and view anything less as pure fluff. These folks would have us write the magazine in machine language and beam it off a satellite. But hey, if there are enough of you out there, that's what we'll do.

So write or call. You might even throw in an article idea or two. We promise to discuss it over stale donuts and coffee sometime soon. ■



OVERSCAN

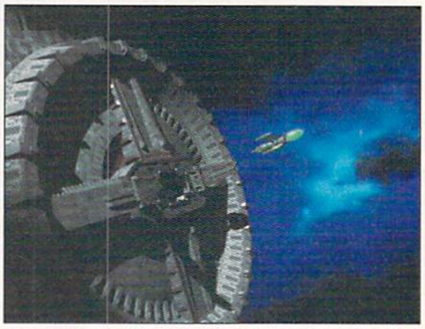
News, New Products and Networks

PRIME EFFECTS ON PRIME TIME

Hollywood filmmakers have long used the Amiga to breathe life into dull computer displays or add high-tech computer graphics to scenes. For the most part, however, the Amiga has taken a back seat in the special-effects arena.

A space station named Babylon 5 is about to take the Amiga out of the back seat and send it racing at lightspeed into the homes of science-fiction fans. The space station lends its name to a two-hour television movie that promises some of the most extensive computer animation ever generated from a desktop.

The story takes place on the space station resting between five space federations. Over 52 Amiga-animated shots—including external views of the space station, alien space craft, massive space battles, and a video wall full of alien creatures selling soap—are involved in the telling.



Babylon 5's docking bay. © 1992, Foundation Imaging.

"In Babylon 5, the Toaster and LightWave allow us to do special-effects shots that would otherwise be impossible, and do the effects on a television budget," says Ron Thornton, who heads the show's digital-effects team. Thornton, a special-effects model maker and computer-animation master, has used NewTek's Video Toaster and LightWave 3D as his primary special-effects tools for the last year. He has created some of the finest images ever to fill a framebuffer, among them moon landers, space battle cruisers, and a steel mill filled with smoke, molten metal, and showers of sparks.

Thornton's Babylon 5 models are spectacularly detailed and realistically textured. Watch for Babylon 5 to air on a syndicated station near you on November 27—and for the special effects/science-fiction model-and-texture package that Thornton plans to produce.

—Mark Swain

NEW LOOKS FOR OLD FRIENDS

Leading the march on the upgrade path is **Professional Draw 3.0** ($199.95), ***Gold Disk***'s structured-drawing program. This overhaul includes a hot link to Pro Page 3.0; more than 30 automatic functions (Genies); ARexx support (to let you edit or create Genies); user-definable linear and radial gradient fills; Pantone, RGB, and CMYK colors; an undo feature; scaling, cropping, and rotating of IFF (including 24-bit) and EPS files; and a clip-art collection. Text handling has been improved, and Pro Draw now supports Compugraphic scalable and Type 1 PostScript fonts. (RS# 115.)

How can you improve on **excellence!**? Just ask ***Micro-Systems Software***. Version 3 of the well-known graphics word processor is compatible with both AmigaDOS 2.04 and ARexx, incorporates a new look and feel, and includes such user-requested features as automatic timed saves, French and German spelling-checker support, an improved ruler, and more. (RS# 128.)

Ami-Back's back in version 2.0 (***Moonlighter Software***, $79.95). New to the hard-disk backup program are improved compression routines, the ability to append backups on tapes, DAT fast-search support, a 911-Recovery mode to salvage data from a crashed drive, password pro- ►

SHOW 'NUFF!

Will any trade shows and conferences exhibit Amiga products and discuss Amiga-related topics this fall? You bet!

You can do some "hands-on browsing" and attend free seminars when you visit the World of Commodore Amiga at the Pasadena Center in Pasadena, California, September 11–13. To save $5 on a one-day or three-day pass (regularly $15 and $30), register before August 21. Send your check, payable to Ramige Management, along with your name and address to World of Amiga, 3380 Sheridan Dr., Suite 120, Amherst, NY 14226. For further information call 416/285-5950. (RS# 139.)

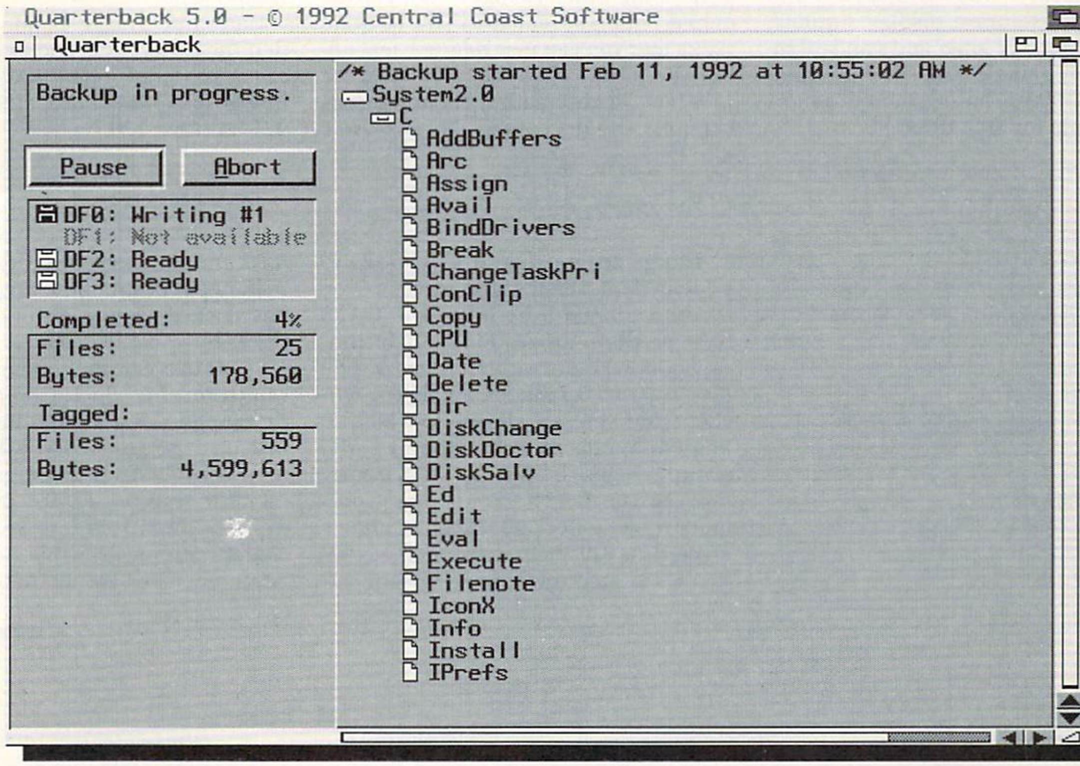
Image World, featuring Video Expo and the CAMMP show, will turn up at New York City's Jacob Javits Center in late September. Seminars will run September 21–25, and the exhibit hall will be open from the 22nd to the 24th. Show producer Knowledge Industry Publications promises that the show will highlight new desktop video equipment for the Amiga, Mac, and PC, and that seminars will cover a range of DTV topics. For details, call 800/800-5474 or 914/328-9093, or fax 914/328-9093. (RS# 140.)

The Software Publisher's Association holds its eighth annual conference this year from Sept. 30 through Oct. 3 in the nations's capital. Developers wanting to network and attend educational sessions should write the Association at 1730 M St. NW, Suite 700, Washington, DC 20036, or fax 202/785-3646. (RS# 141.)

To locate the vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 94.

Quarterback 5.0

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tection, on-line help, and ARexx support. (RS# 116.)

Broadcast Titler 2 Super High Res (***InnoVision Technology***) promises to make your titles look sharper. Building on Broadcast Titler 2, the updated character generator adds transitions and 1472×480-resolution display support, and it lets you mix super and standard hi-res lines on a single page. The program sells for $499.95, but registered owners can upgrade for $99. (RS# 117.)

Did Your Family Tree fall under the recent onslaught of AmigaDOS 2.04? Don't worry, ***MicroMaster*** has released **Your Family Tree 2.2** ($79.95), which assures compatibility with the new Workbench. The genealogy database has undergone some other changes, too. For example, reports are enhanced, the bugs are fixed, and you can now define a text editor and picture viewer for use within the program. Registered owners of previous versions should contact MicroMaster for upgrade details. (RS# 118.)

A-Talk III owners should get in touch with ***New Horizons*** for help. The company has taken over distribution and technical support duties for the popular telecommunications program from Oxxi. (RS# 119.)

Can't find **Image Catalog**? No wonder; the texture collection's manufacturer has moved. Direct future inquiries to ***Robert Young*** at PO Box 1134, Perris, CA 92572. (RS# 120.)

Jump Start for 3-D

Anjon & Associates has the charge to get you up and running with Animation Journeyman—the **Animation Journeyman Starter Kit** ($59.95). A tricks-and-tips videotape, sample 3-D objects, and 24-bit IFF maps are included to boost you up the learning curve. (RS# 111.)

For other programs, try ***Slide City***'s **TV Objects** as creative fuel. The two-disk set contains 33 geometric objects, arrays, and spirals of various styles in Sculpt 3D/4D and Turbo Silver/Imagine formats ($49.95). For $19.95, you can purchase the set in VideoScape 3D format, or get all three formats for $59.95. (RS# 112.)

Commodore Calling

Things are moving at Commodore: people, departments, and prices.

Although Jeff Scherb has left, CATS (Commodore Applications and Technical Support) is not without a leader. The new "top cat" is John F. Campbell, a ten-year CBM veteran who in days of yore helped launch the VIC-20 and C-64. Campbell has begun his new job by moving the CATS group into Commodore's engineering division, a move he predicts will "help strengthen ties between Commodore's development efforts and the work of our developers."

In hopes of strengthening sales, CBM has slashed suggested retail computer prices by up to 25%. These price moves are part of a new multimedia marketing campaign, for which Commodore has developed a few system bundles. The first of these, an A2000 with a 100MB hard drive, 5MB of RAM, and a 1084S monitor, sells for $2699, or for $3159 with an 150MB tape drive. Two other configurations, available only through September 30, are an A3000T with a ►

ON-LINE SCAN

By Tim Walsh

Want to enhance your Workbench 1.3 or 2.04 interlaced display? Then a visit to CompuServe's AmigaUser area is in order. There in Library 11 you will find LACEP.LZH, an interlaced pointer that is the "right" size for your screens and compatible with other pointer hacks such as the animated "busy-hand" pointer.

While on CompuServe, also be sure to get DWORK.LHA, located in Library 15 of the AmigaUser area. This popular program is Chris Hames' DirWork V1.62, a directory utility loaded with buttons and configurable options.

Although its scant download numbers are misleading, one of the better utilities on BIX goes by the filename expwin.lha. Known as Exploding Layers 1.0, and written by Andreas Schildbach, this easily implemented commodity makes Workbench 2.x windows "explode" as they open. Closing a window has an opposite, imploding, effect. I've found the program to be virtually bulletproof, and I think it gives accelerated Amigas a refined look.

The Toy Department

GEnie is keeping the telephone companies busy with its second-to-none choice of downloads, including WBTOYS11.LZH (file number 16263, Amiga Library 15). Workbench Toys version 1.1 updates the five programs in the original release and adds two new "graphical interaction" toys, EtchToy and RippleToy, for the 2.04 GadTools library.

A 4K text-file that looks as though it was originally addressed to Portal is unique to GEnie. Called CDROMS.LZH (file number 16244 in Amiga Library 33) and written by Dan Barrett, it is a roundup of CD-ROM information for the Amiga. With stats on drive and file-system popularity, details on drives from major manufacturers, a list of the author's favorite discs, and so on, the file makes for good reading.

Portal, in a move to expand its flexibility, has now added Internet access. It has also added CPUSET.LZH—a must-have for accelerated Amigas—to the File Libraries/Resource & System Utilities category of its Amiga area. Whether you use 2.04 or 1.3, a 68020 or a 68040, you can use this program to enable or disable the instruction and data caches in a hurry.

While you're on Portal, also check out AIBB43.LHA in the File Libraries/Resource & System Utilities area. It's the latest version of the Amiga Intuition-Based Benchmarks by LaMonte Koop.

If you're interested in establishing an account with one of the networks, call:

BIX
800/227-2983
617/354-4137

CompuServe
614/457-0802
800/848-8199

GEnie
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✓ 68020 and 68030 compatible.

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✓ Multiple effects for each note.

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Circle 1 on Reader Service card.

200MB hard drive, 5MB of RAM, and a 1950 or 1960 VGA color monitor for $4499 suggested retail; and an A3000-25/50 with a 50MB hard drive, 2MB of RAM, and CBM's new 20-MHz A2386SX Bridgeboard for $3399. The 386 Bridgeboard, which fits into A2000s and A3000s and comes with MS-DOS 5.0, lets you run IBM applications in a window under AmigaDOS and transfer between Amiga and MS-DOS disks. (RS# 132.)



OVERHEARD

Do you have a computer that's collecting dust? Two nonprofit agencies want to put it to use to help at-risk and special-needs people and to encourage freedom in newly democratic nations.

The National Cristina Foundation (NCF) seeks computers and televisions for educational programs to help folks with differing abilities reach their potential and lead productive lives. Over 5000 computers have been placed thus far; donors receive notification of where and how their equipment is used.

Meanwhile, the East West Education Development Foundation wants to counter the government's "pathetically inadequate" aid and give ex-Communist countries tools to think their way out of economic dilemmas. Today, one donated PC helps monitor one of the world's most polluted rivers—the Danube. If you lack equipment but still want to help, a $50 or $100 contribution will ensure shipment to a trainer who will instruct users.

Donations to either group are tax deductible; corporations receive additional tax benefits. Contact NCF at 42 Hillcrest Dr., Pelham Manor, NY, 800/274-7846, or 914/738-7494 (RS# 142). Reach East West at 49 Temple Place, Boston, MA 02111, 617/542-1234 or fax 617/542-3333 (RS# 143).

A1000 AND A500 ADD-ONS

Cramped Amiga owners: a quartet of companies wants to pump you up.

Available in lightweight ($149) and heavy-duty metal ($169) versions, ***CeV Design***'s **X-pander** chassis lets you add A2000 boards to your A1000 or A500. Both models connect to the CPU's expansion bus; the A1000 box leaves two holes for mouse-port access. (RS# 121.)

Pre'spect Technics serves the same market with **NakeD-Up** ($49.50). A small circuit board with one slot, the unit plugs onto your A500's or A1000's bus, allowing you to run one A2000 card. A pass-through port is provided, and a two-slot version is planned. (RS# 122.)

Comspec's **ARM 1000** ($99) lets you install 1.3 or 2.0 Kickstart ROMs in your A1000 and boot from either OS. With a hardware modification, you can also free an extra 256K of RAM. (RS# 123.)

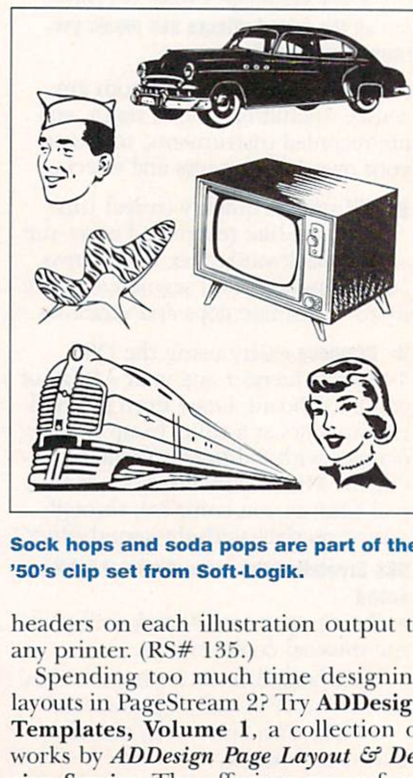
Doing double duty, the **DataFlyer Express** (***Expansion Systems***) adds a hard drive and up to 8MB of memory to your A500. For the hard drive, you can choose a SCSI, IDE/AT, or SCSI/IDE controller. The SCSI controller allows up to seven daisy-chained devices, while the IDE handles two. Pick the SCSI/IDE combo, and you can run all nine devices at once—but you may need the optional power supply. (RS# 124.)

THE STRUCTURE OF THINGS

Genisoft's **Expert Draw** ($99), a new structured-graphics program, includes Bezier curves with point insertion and deletion. Also in its repertoire are multiple-object duplication with successive resizing and rotation, a morphing feature, and object distortion to either prescribed constraints or free control. An autotrace function turns bitmapped images into structured drawings. Two color options let you blend hues across groups of objects and define in RGB or CMYK terms. (RS# 133.)

An add-on module for **PSImport**, ***Stylus***'s draw program, lets you import EPS (Encapsulated PostScript) drawings into ProVector and save them in Amiga IFF-DR2D or -ILBM formats. PSImport can also convert most PostScript Type1 fonts into the IFF-OFNT outline-font format for use in ProVector. With the help of a transfer utility such as Consultron's CrossDOS or a modem for downloading, it allows access to nonAmiga graphics, as well. (RS# 134.)

The **Soft-Logik Clip Art Library** contains over 2000 EPS graphics files divided into 21 theme volumes ($99 each). You can import the structured graphics into ***Soft-Logik***'s PageStream 2 publishing program and resize them without losing resolution. Handy TIFF bitmap headers on each illustration output to any printer. (RS# 135.)



Sock hops and soda pops are part of the '50's clip set from Soft-Logik.

Spending too much time designing layouts in PageStream 2? Try **ADDesign Templates, Volume 1**, a collection of works by ***ADDesign Page Layout & Design Service***. The offerings range from complex and specialized to simple and versatile, and you can use them as is or customize them to fit specific requirements. (RS# 136.)

A GRAPHICS GEM

OpalVision (***Centaur Development***) is the latest to enter the graphic-enhancer ring. A 24-bit framebuffer for the A2000's or A3000's video slot, OpalVision handles resolutions up to 768×480 (768×580 in PAL), 16.8 million colors, and double-buffered animations, and it can display Amiga graphics or animations in front of or behind its own images. To access these features, the package comes with Opal Paint, a 24-bit paint and image-processing program; Opal Presents, presentation software for controlling and combining OpalVision images, Amiga graphics, and live video; OpalVision HotKey, an ARexx-compatible utility that lets you display and swap OpalVision screens at any time; and King of Karate, a 24-bit arcade game.

The future of OpalVision is even more intriguing, with framegrabber-and-genlock, scan-rate converter, and production-switcher modules planned, as well as a special-effects Roaster chip. (RS# 127.)

HERE AND THERE

Take a voyage across the Atlantic Ocean with the flip of a switch: ***Luna Tech***'s **A3000 PAL/NTSC Switch** ($15.95 plus $2.50 shipping) is offered with a lifetime warranty and promises to install quickly and easily. Once in place, the unit lets you run software in either NTSC (the North American video standard) or in PAL (the European standard). (RS# 129.) ►

YOU'LL BUY IMPACT VISION 24 FOR ONE VIDEO NEED AND FIND YOU NEED IT FOR EVERYTHING VIDEO



If you're into video, IMPACT VISION-24 is truly a dream come true for your A3000 or A2000. It is the first multi-function peripheral specifically designed for the A3000's video expansion slot.
With the optional A2000 genlock slot adaptor kit, it also perfectly complements and enhances the A2000.
Check out these features, all packed on a single Amiga® expansion board!



▶ **Separate Composite and Component Video (RGB+Sync) Genlocks.** RGB genlock operates in the digital domain, for digitally perfect production studio quality mixing: no color bleeding, no ghosting, no artifacts . . .!

▶ **1.5MB Frame Buffer.** Display 24-bit, 16 million color images on your Amiga monitor. On a multi-sync monitor, you can even display 16 million color images in non-interlaced mode!

▶ **Realtime Framegrabber/Digitizer.** Freeze, grab and store (in standard 4096 or 16 million color IFF format) any frame from a "live" incoming RGB video source.

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▶ **Flicker-Eliminator.** Duplicates and enhances the A3000's display enhancer circuitry. It even de-interlaces live external video! A must for any A2000 owner. Ask about our A2000 "genlock slot trade-up" program.



▶ **Simultaneous Component Video (RGB) Out, Composite Video Out and S-VHS Video Out.** Now, anything you can see on your Amiga monitor can be recorded on video tape, including animations, ray-traced 24-bit images and more!

Introducing the IMPACT VISION 24™ from GVP
The All-In-One Video Peripheral for the A3000 and A2000

▶ **Picture-In-Picture (PIP) Display.** Freeze, resize, rescale and/or reposition live incoming RGB video just like any workbench window at the double click of a mouse or the pressing of a "hot key". With a multi-sync all this can even be in rock steady de-interlaced mode. Unique "reverse-PIP" feature, even allows you to place a fully functional Amiga workbench (or other application) screen as a SCALE-ABLE (shrunk down!) and re-positionable window over full-screen live video.

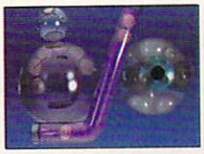
▶ To make sure you can take full and immediate advantage of every feature of your new *Impact Vision 24* video-station, we even include the following software with every unit:

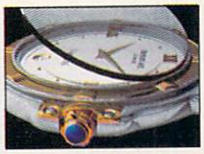
- **Caligari™-IV24.** An exclusive version of the leading broadcast quality, 3-D modelling and rendering program. Use your imagination to model 3D, 16 million color, scenes. Use your digitized video images as textures to wrap around any object! The mind is the limit!
- **SCALA™-Titling.** Easy-to-learn, video titling package complete with lots of special fonts and exciting special transition effects. Turn your Amiga into a character generator.
- **MACROPAINT™-IV24.** A 2D, 16 million color paint program that lets you have fun creating or manipulating any 16 million color, 24-bit image.





- **Control Panel.** Provides full software control over all Impact Vision-24's numerous features. Use your mouse or simply press a (configurable) "hot key" to activate any feature.





At GVP, we wanted to make a major impact on the use of the A3000/2000 by professional video enthusiasts. With the Impact Vision-24 we have!

For more information on how the **Impact Vision 24** can have a major impact on your video productions, call us at **215-337-8770.**

IMPACT VISION 24



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Circle 1 on Reader Service card.

Virtually Amiga

If you've ever imagined being inside your favorite video game, you know what virtual reality (VR) is. A concept developed by NASA, VR seeks to let human beings interact with otherwise impossible realms.

Now, the world's first commercial VR system, Virtuality, incorporates three 25–33-MHz Amiga 3000s, a 100MB hard drive for program code, and a 553MB CD-ROM for incredible sound into one $65,000 control unit. Although only two units are necessary for real fun, you can network up to six for simultaneous play.

I saw a two-machine setup at the Limelight Club in New York City, where it ran its first application, the addictive Dactyl Nightmare. This hi-tech showdown pits human beings against each other or the computer; while you hunt one another, two pterodactyls circle overhead. If you shoot too fast or too many times without striking, the flying reptiles swoop down to grab you, lift you high above the playing field, and drop you.

This sequence is the only one in the game that gives a third-person rather than a first-person view of the action. The mechanical grabbing device consists of a 375-pound raised circular platform connected to a waist-level ring via three equally-spaced, curved columns. The ring functions as a restraint during play.

Well Suited

To suit up for play, you step onto the platform where the ring is lowered, a hip pack is belted around your waist, and a helmet is placed on your head. Two cables connect the hip pack, which contains hip motion-detection circuitry, to the helmet. A third leads from the hip pack to the controller, which has two buttons and looks like a joystick. The top button causes your game persona to walk or run toward whatever you see; the other lets you shoot. Once you get a feel for the game, it doesn't matter that the graphics are blocky and the display offers just 256 colors in a 768×512 resolution. All that matters is winning.

According to Dave Polinchock, the New York City dealer for Virtuality, the system will undergo many changes by year's end: You will be able to network 20 machines, and a sit-down version will be developed. On the software side, more games are in the works, including a racing simulation and a Dungeons and Dragons-style adventure. For more information on the system, contact Horizon Entertainment at 800/Illusion.

—Rajesh Goel

Sign Here

Fingerspelling—it is the use of hand positions to indicate letters of the alphabet, and it constitutes a part of American Sign Language. It is also the subject of ***The Puzzle Factory***'s new **fingerTalk** ($35), a tutor suitable for both children and adults.

The program offers five teaching modes, speed control, and text files. It also includes games to help you practice and tips for signing and reading fingerspelling. (RS# 130.)

Programmer's Corner

Need help with AMOS? *PLAYFIELD!, The Journal of Creative Amiga Programming with AMOS*, may have the answers. This bimonthly newsletter is filled with code examples and articles. One-year subscriptions are $20, but you can buy a sample issue for $1. (RS# 125)

If you're a neophyte, **Easy AMOS** (***Europress Software***) has your code. The package includes the language, a course of 20 programming lessons, and two program examples (a Breakout clone and a racing game), plus plenty of documentation to walk you through it. (RS# 126.)

More MegaHertz

Kick your A2000 into high gear with **Vector**, an accelerator from ***Interactive Video Systems***. Available in 25-, 33-, and 40-MHz versions, Vector comes with Motorola's 68EC030 or 68030 in the processor socket, a socketed 68882 math coprocessor, a SCSI controller, an external 50-pin SCSI pass-through, and SCSI-Share Networking. Not only does the board boot in either 68000 or '030 mode, but it also allows the 68000 to access the SCSI controller and up to 8MB of RAM. If you need more than the Vector's maximum 32MB of RAM, the board is compatible with Commodore's 2630 expansion bus and any memory expanders built for it. (RS# 113.)

The Fast Lane, a chip-RAM accelerator and expansion device for the A500 and A2000, promises to let your system access chip RAM at least as quickly as it does fast RAM. The Fast Lane plugs into the CPU socket and accepts 2MB of memory and a one- or two-meg Agnus chip. Get it unpopulated ($269) or with two megs ($399) from ***Black Knight Peripherals***; you supply the Agnus chip. (RS# 114.)

Head to Ed

Want to compare text editors? Dare to discover their obscure features? ***Vidia***'s *Amiga Text Editor Quick Reference* ($7.95) is a 20-page publication that lists keyboard equivalents, macro languages, and so on for 11 programs: CygnusEd, TurboTest, TxEd Plus, Uedit, DME, LSE, Z, Ed, Edit, MicroEMACS, and Notepad. (RS# 131.)

Texture Topics

For algorithmically-generated textures designed to simulate real and surreal surfaces, try on **TexTiles** (***Mannikin Sceptre Graphics***). The images, available in IFF-24 or Video Toaster format, measure 256×256 each, so even those with just 1MB of memory can use them (3MB and a hard drive are recommended, though). TexTiles' edge-mapping feature promises seamless transitions for tiling fills and image wrapping. Each 40-image volume costs $39.95 and comes on ten disks. (RS# 137.)



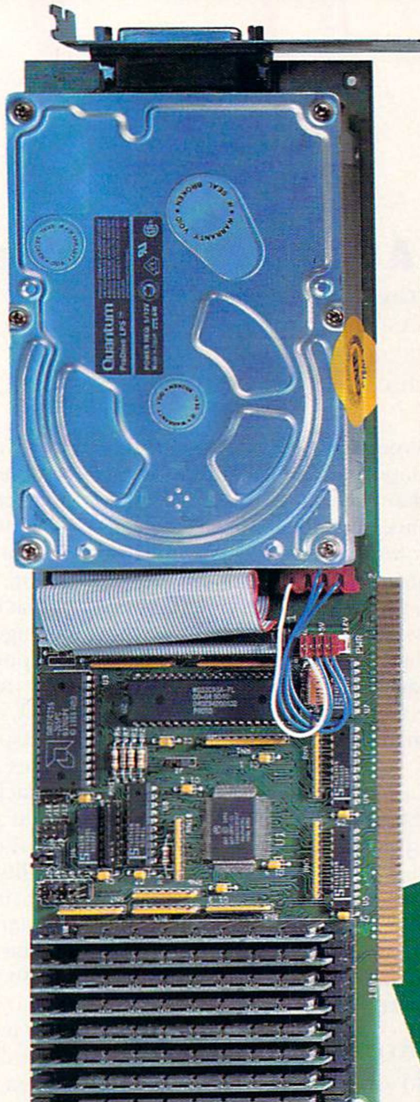
Pining for the Ultimate Wood Collection?

Would you prefer arboreal textures? ***Bearded Wonder Graphics***' **Ultimate Wood Collection** is available as a full set ($190) or a sampler ($60). The former offers 48 textures, including plank and parquet, in as many as three styles each (plain, rough, and polished) for a total of 116 images. The smaller collection contains a dozen textures in the three styles. Take your choice of HAM or JPEG IFF-24 formats. (RS# 138.)

Overscan is compiled by Barbara Gefvert, Linda Laflamme, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

#1—AND DRIVE-ING HARD TO STAY THAT WAY!

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Only GVP* Factory Installed *A2000 HC8+/ SCSI Hard Disk+RAM Boards have a track record this good —over 20,000 satisfied Amiga® users and now a 2-Year Warranty!

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All A2000 HC8+ have been redesigned and equipped with GVP's newest fastest SCSI Driver—**FAAASTROM** 4.5. Plus, we've also doubled Western Digital's SCSI Controller clockspeed to 14Mhz—for a tremendous increase in speed . . .

▶GVP's A2000 HC8+ ...JUST LOOK AT THESE FEATURES

- Custom chip design for the fastest possible data transfer rates and DMA performance—even in a multi-tasking environment.
- Easy-to-Install SIMM memory modules for configurations up to 8MB—and support BridgeBoard users with the 6MB FAST RAM.
- Support for virtually any SCSI device.
- Fastest and easiest SCSI installation possible.

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REVIE

40-MHz 68030 accelerator, hard drive, and RAM expansion.

A530 Turbo Accelerator

***Great Valley Products,* $999**
A500.
External, expansion bus connection.
Installation: Easy.

Great Valley Products (GVP) has a well-deserved reputation as the Amiga's leading third-party hardware developer. The first to offer serious, high-speed accelerators, it remains one of the foremost producers of cutting-edge, high-performance accelerators for the Amiga 2000 and 3000 lines. GVP was also among the first to produce an expansion chassis for the A500 (the Series II) that combined a hard drive with RAM expansion. With this background, it should come as no surprise that the company has developed the most all-encompassing A500 expansion product I have seen.

The A530 Turbo is a combination of several products. It's a 40-MHz 68030 accelerator, a high-speed SCSI hard-drive controller, a hard disk, a RAM expander, and an (optional) PC emulator, all rolled into one slim box that fits perfectly alongside the A500 case. It plugs into the expansion bus and has its own power supply, an important consideration because the standard A500 supply is designed to power only the computer.

Simple, Fast, and Reliable

Hooking up the A530 was the easiest hardware installation I have ever made. With the power off, you just slide the A530 on the expansion bus, connect the power supply, and turn on the power. When you power up, the A530 detects which version of the operating system you are using (1.3 or 2.0) and automatically installs the appropriate version of Workbench onto itself.

All this is done without your putting a floppy disk into a drive. The only user intervention is responding to the request to specify which keymap you want from the supplied list. Once started, the whole installation takes only a couple of minutes of hard-disk activity; the system reboots itself, and in seconds you are presented with a Workbench screen complete with a disk icon for the new drive. The A530 certainly sets a new standard for ease of hard-disk installation!

To locate the vendors of the products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 94.

Built into every A530 is a 40-MHz 68EC030 processor. This CPU differs from the standard 68030 in that it does not contain a built-in MMU (memory-management unit). While the MMU is an important component, on the Amiga it is used primarily to copy the system ROM into fast 32-bit RAM and protect it, a technique that greatly speeds up nearly every aspect of the operating system. The A530 includes its own circuitry to accomplish this task, so the lack of an MMU is no great disadvantage.

You also get several programs to help control the use of the new CPU. One of these is GvpCpuCtrl, a utility that copies the ROM into RAM. The automatic installation procedure adds this command to the startup-sequence, so you never really have to use it. The only exception is if you want to switch from 68030 to 68000 mode (which you may have to do to run some older games). In those instances, you use GvpCpuCtrl to turn off the 68030 and revert control to the 68000. To take effect, this requires a system reboot, and once it's done, the A530's hardware resources (including RAM and the hard disk) are no longer available.

If you need a floating-point processor (FFP), keep in mind that the standard configuration does not include a 68882 chip. The board does contain a socket for one, however, and you can either buy the A530 already equipped with a 40-MHz 68882 or add one later. The unit I reviewed came with the 68882 installed, and, as the chart below indicates, performance for floating point was significantly better then the standard A3000.

The hard-drive controller in the A530 is the same DMA SCSI technology used in all of GVP's hard-disk products. As such, it has been on the market for some time and is quite fast and very reliable. The standard A530 ships with a 52-megabyte hard drive, but you can also buy it with a 120MB or

W S



The A530, inside and out.

240MB drive instead ($1179 or $1399). Disk performance (as measured by DiskSpeed 4.2) is quite high, with reads approaching 900,000 bytes a second. In addition, because the A530 has an external SCSI port, you can daisy chain up to six other SCSI devices (such as a CD-ROM drive), as long as they have their own power supplies.

Room for Expansion

The stock A530 comes with one megabyte of 60-nanosecond, 32-bit expansion RAM, and allows you to add another two, four, or eight megs with one- or four-megabyte SIMMs (single in-line memory modules). You cannot mix SIMMs, however, meaning that you must use either all one-meg or all four-meg SIMMs.

RAM installation is very simple: Remove three screws, lift the top, and slide the SIMM into one of the two sockets. You must also set a couple of jumpers, but these are easily accessed and well-documented in the manual. I added eight megabytes in only five minutes, including opening and closing the case. When I turned the machine back on, I had nine megabytes of RAM in my A500, making it the equal of my trusty A2500 sitting nearby.

You can add more than RAM, as well. Inside the A530 is a small custom mini-slot for other expansion devices. While I didn't test it, one card already available is GVP's PC286 emulator, a 16-MHz, 80286 AT-class computer that promises to run a wide variety of MS-DOS software. (Watch for a review in an upcoming issue.)

The A530 is a remarkable device. I used AIBB (the standard Amiga benchmark program) to compare the 40-MHz 68EC030 with a stock 25-MHz A3000. As the chart below shows, the 68EC030 significantly outperformed its bigger brother. The only areas where it wasn't faster were in tests that used the built-in graphic routines, which is not surprising when you consider that the A3000 has a completely 32-bit-wide architecture, while the A530/A500 combination still uses the A500's 16-bit chip memory when the custom chips are accessed. The A530's ►

Figure 1. A530 AIBB results

Writepixel	**0.40**	**Savage**	**1.60**
Sieve	**1.58**	**FMath**	**1.59**
Dhrystone	**1.37**	**FMatrix**	**1.57**
Sort	**1.50**	**BeachBall**	**0.86**
Matrix	**1.51**	**SWhetstone**	**1.86**
IMath	**1.51**	**DWhetstone**	**1.52**
MemTest	**0.97**	**FTrace**	**1.62**
TGTest	**0.69**	**CplxTest**	**1.45**

NOTE: These A530 results are in comparison to a 25-MHz A3000. A result of 1.0 indicates a speed equal to the A3000; higher values represent better performance. A value of 1.5, for example, indicates a speed 50% faster than the A3000.

Figure 2. A530 DiskSpeed 4.2

Testing directory manipulation speed:

File Create:	**13 files/sec**	**CPU Available: 73%**
File Open:	**53 files/sec**	**CPU Available: 46%**
Directory Scan:	**148 files/sec**	**CPU Available: 25%**
File Delete:	**30 files/sec**	**CPU Available: 70%**
Seek/Read:	**52 seeks/sec**	**CPU Available: 70%**

Testing with a 262144-byte, MEMF_FAST, LONG-aligned buffer:

Create file:	**490477 bytes/sec**	**CPU Available: 47%**
Write to file:	**846676 bytes/sec**	**CPU Available: 33%**
Read from file:	**891862 bytes/sec**	**CPU Available: 29%**

hard-drive performance is equally impressive, and the fact you can so easily add both 32-bit memory and a PC emulator makes it a formidable expansion option.

Finally, and perhaps the biggest surprise of all is the price. It is cheaper to buy an A530 ($999) and a new A500 ($399) than a new 25-MHz A3000—and you get a faster computer! So if you aready have an A500 and have been wanting a faster system, the A530 deserves some serious consideration. I highly recommend it.

—Lou Wallace

Resolver Graphics Coprocessor

Digital Micronics Inc., $1295 for base

A2000, A3000.
Internal, slot connection.
Installation: moderate.

Graphics-enhancer board for workstation-style displays.

LOTS OF AMIGA display devices give you more colors, but the Digital Micronics (DMI) Resolver board gives you something extra—a larger display area. The Resolver displays 256 colors (out of a palette of 16.7 million) in resolutions of up to 1280×1024 pixels noninterlaced and 2048×2048 pixels interlaced. This large screen area makes the Resolver suitable for applications that require a lot of display space, such as desktop publishing and CAD. Because it supports many of the standard VGA resolutions, the board is also well suited to developing graphics for use on IBM-compatible systems.

Because the Resolver uses any expansion slot and does not need to be connected to the normal Amiga display system, you can install more than one in a machine. For horizontal resolutions greater than 200 lines, you also need to connect a VGA-compatible monitor to the board's 15-pin VGA-style connector. (The subject of monitor types and the results they produce is completely omitted from the rather slim Resolver users manual.)

While you can run the system with a single monitor connected to a switchbox that lets you select either the Amiga or Resolver display, it's much more convenient to run two monitors, one hooked to the Amiga display and the other to the Resolver. To derive the maximum benefit from the Resolver, you need a large (17- to 20-inch) multiscanning monitor, as well as a large hard drive and several megabytes of RAM, because oversized eight-bit pictures eat up huge amounts of storage space and memory.



YOUR TURN!

The Resolver gives the Amiga a cost-effective way to compete with Macintosh, NeXT and Sun workstations. I use my Amiga 3000 for desktop publishing, and the Resolver displays my Epson ES300C-scanned images with remarkable clarity. Add ADPro 2.1, and the board functions like a highly versatile framebuffer.

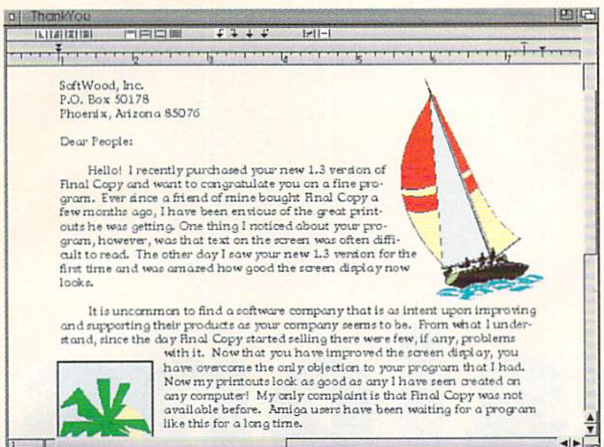
Leonard O. Thomas, Jr.
Oakland, California

Sage Advice

After the hardware is hooked up, you need to install the software, particularly the SAGE libraries. SAGE was developed jointly by DMI and Progressive Peripherals as a standard way for applications software to access graphics boards based on Texas Instruments' 340x0 processors (as are the Resolver, Progressive Peripherals' Rambrandt, and Commodore's A2410).

Continued on p. 54.

NO BRAG, JUST FACTS!


ThankYou

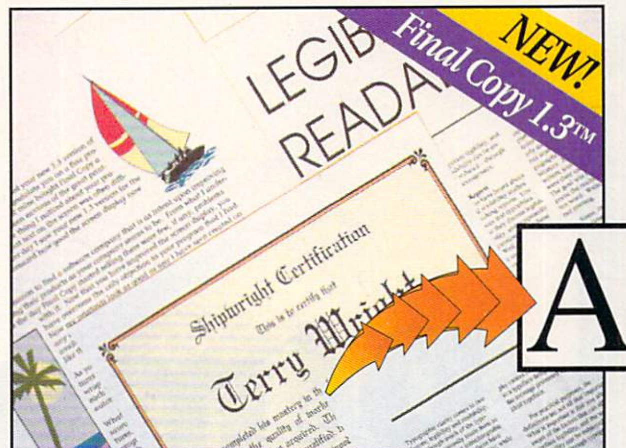
SoftWood, Inc.
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Dear People:

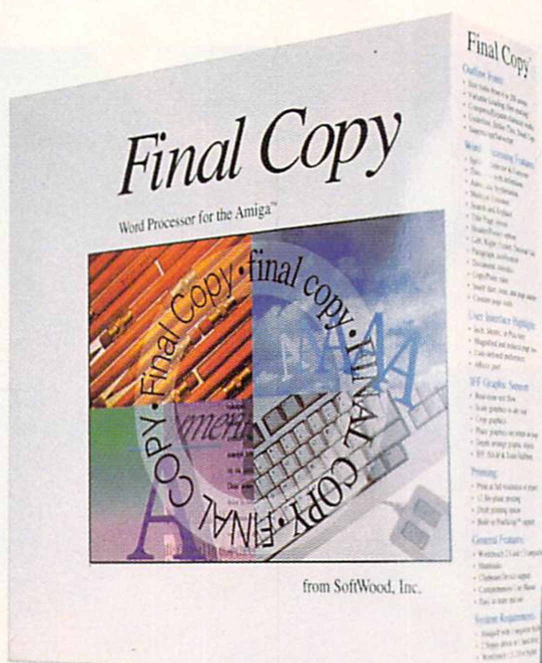
Hello! I recently purchased your new 1.3 version of Final Copy and want to congratulate you on a fine program. Ever since a friend of mine bought Final Copy a few months ago, I have been envious of the great printouts he was getting. One thing I noticed about your program, however, was that text on the screen was often difficult to read. The other day I saw your new 1.3 version for the first time and was amazed how good the screen display now looks.

It is uncommon to find a software company that is as intent upon improving and supporting their products as your company seems to be. From what I understand, since the day Final Copy started selling there were few, if any, problems with it. Now that you have improved the screen display, you have overcome the only objection to your program that I had. Now my printouts look as good as any I have seen created on any computer! My only complaint is that Final Copy was not available before. Amiga users have been waiting for a program like this for a long time.

Version 1.3's new screen display is easy to read!



Best output of any Amiga word processor!



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As one of our customers said, "You don't have to be a rocket scientist to see Final Copy has the best printing of any Amiga word processor."

Comparison Chart	Outline Fonts Included	Crop Graphics	Load Simple HAM graphic	Thesaurus Synonyms	Speller Words	Snaking Columns	Graphic Text Flow	Automatic Hyphenation
Final Copy 1.3	35	Yes	3.5 sec.	470,000	116,000	1-6	Yes	Yes
ProWrite 3.2®	0	No	1 min 20 sec	300,000	100,000	1-5	No	No

Comparison Chart	Price	Frame Graphics	24 Bit ILBM Support	Thes. with Definitions	Page Views	Print 1 pg. Document	ARexx	Use Amiga Clipboard
Final Copy 1.3	$99.95	Yes	Yes	Yes	25-400%	53 sec.	Yes	Yes
ProWrite 3.2®	$174.95	No	No	No	No	2 min 5 sec	Yes	No

$99.95 VISA & MASTERCARD **1-800-247-8314** SoftWood, Inc.

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Moving in 3 Dimensions



Need to add some new techniques to your animation repertoire? You've come to the right place. These tutorials, covering most Amiga 3-D software, are sure to make animating a more moving experience.

The idea of connecting small sequences of motion to produce complete, fluid, and graceful action is at least as old as Eadweard Muybridge, who in 1887 published one of the first definitive photographic studies of human and animal motion. It seems, though, that no matter how sophisticated our technology becomes, the conceptual problems never change. The evolution from the single-cel environment into the three dimensions of computational cyberspace increases the challenge. Even the most minute gesture has to be "programmed" for 3-D space and cannot be considered from a single viewpoint, which is no mean feat when you consider that most of our training in life has been two-dimensionally oriented.

Most of us have overused the spins, rolls, flips, fly-bys, and other visual tricks of animated TV commercials…they offer the most interesting results for the least amount of work. Add a chrome or glossy plastic finish, and network TV has nothing on you. So what can you do for an encore?

The possibilities are nearly endless. In this compilation of tips, based on five of the major 3-D Amiga programs, we offer some suggestions. No matter which software you use, you are bound to uncover ideas and techniques that apply elsewhere. Here's to more proficient and effective 3-D animation! *(To locate the vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 94.)*

—Phil Fitzpatrick and Barbara Gefvert

Enlightened Motion

Imagine

By Victor Osaka

SOONER OR LATER, you are bound to encounter an animation that demands an unusual approach. A recent project I worked on required that the camera pan left to right at varying speeds during a single animation. The objective was to simulate the viewpoint of a person walking past a series of lamp fixtures, taking time to notice each one.

Although ***Impulse***'s **Imagine 2.0** ($350) can apply acceleration and deceleration factors to an axis following a path, these factors affect only the path's start and finish; Imagine does not let you segment the path and apply variable speeds to those parts. While there may be different ways to create the varied-pace effect, I discovered a method that is both universal and modifiable. This tutorial will help you create a smooth, human-like movement that you can apply to various situations—and even various programs. I first tried this technique in Impulse's older program, ►

Turbo Silver, and have since found it relevant to any motion-path-based animation software, including high-end nonAmiga applications.

On Track

Figure 1 shows the top, front, right, and camera views at frame 55 of the example animation. Notice the relative positions of the camera and the track object, and how the camera points to the track object in each view. Also, see how the track-object path is slightly rotated in the right view. Keeping this path in line with the camera eliminates camera bounce and creates smooth camera movement.

To recreate this animation, you would first model the display case, the two lamp fixtures, and the ground plane in the Detail Editor. Positioning and sizing the objects relative to one another here ensures correct orientation for loading into the Stage Editor later. (Be sure to save each object and every other change you make throughout the production.)

The next step is to add an open path for the track object and size and position it as shown in Figure 2. Now add a path for the camera, and edit it using Fracture, Move, and Rotate to approximate the camera path shown. As you can see, I named these TrackPath and CamPath, respectively. Note that objects will follow a path in the direction of the Y-axis—away from the origin.

Now move to the Action Editor and enter a frame count to determine the length of the animation; I used a frame count of 200. Switch to the Stage Editor, and load the objects into frame 1. Add a track axis for the camera to track, and place light sources in the appropriate positions.

Back in the Action Editor, select the Info function and click on the Camera Size bar (frame 1). Changing the X value to 520 lets you approximate a 38mm lens on a 35mm camera. Leave the End Frame value set to 1.

With the Delete function selected, click on the Position bar (frame 1) for the camera and track objects, and on the Alignment bar for the camera only. Then, selecting the Rename menu item, click on the name path (you'll see that it appears in the left column) and enter the name TrackPath. Similarly, rename path.1 to CamPath.

Now set up the camera to follow the course of the CamPath for the entire 200-frame animation. Select the Add function, double-click on the Camera Position bar (frame 1) and select "follow path." In the requester that opens, enter the name of the path (in this case CamPath), and change the last frame number to 200. In the Track Position bar, enter "Track Path" and set the end-frame value to 200. Then enter "Track" in the Camera Alignment bar and set the end-frame value here to 200 as well.

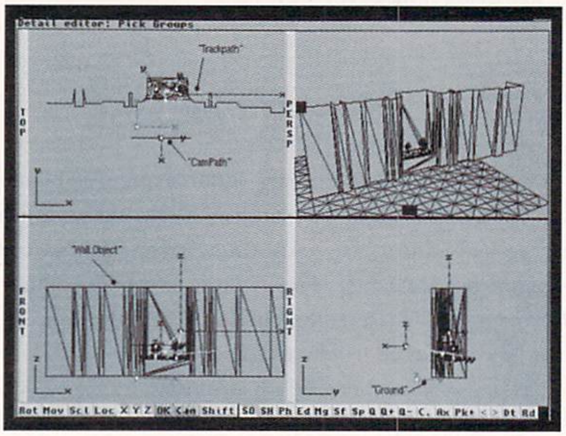


Figure 1: The camera points to the track object in all four views. The top-right perspective view shows a thumbnail of the alcove that appears fully rendered on page 20.

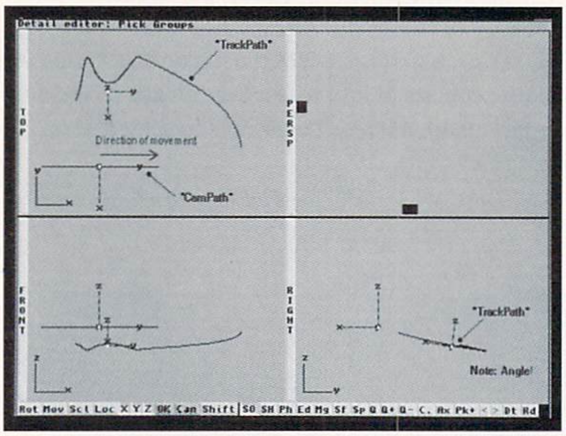


Figure 2: The track and camera paths.

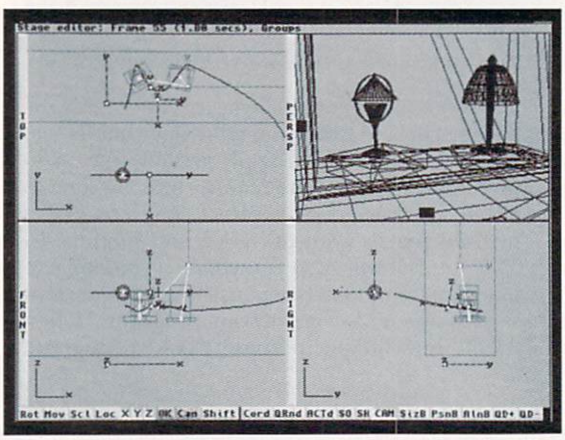


Figure 3: A more complete view, from the Stage Editor.

Staged Performance

Now reenter the Stage Editor at frame 1. If you have completed the aforementioned steps and selected the Camera view, you should see that the camera is indeed pointing to the track object. Both the camera and the track object should now be positioned at the beginning (far left) of their respective paths.

Go to frame 200 and make sure the camera is still pointing to the track object, and that both camera and object now appear at the end (far right) of their respective paths. Selecting Make lets you preview your animation before rendering. You'll be pleased to see smooth, correctly paced motion.

I suggest you practice this technique with simple objects and paths. Good camera motion can make or break a good animation, and practice is very necessary to achieve that goal.

Victor Osaka is president and founder of the 3D Art Forum International, an Amiga 3-D educational foundation that offers support, information, and discounts to members all around the world. You can write to him at 1341 Ocean Ave., Suite 349, Santa Monica, CA 90401, or call him at 301/398-7649.

ARTICULATIN' RHYTHM

DRAW4D-PRO

By Phil Fitzpatrick

Hierarchical articulation, one of the most exciting phenomena associated with simulating live creatures, has shifted from mainframe computers to the desktop. Today, several software packages for the Amiga offer this "motion chaining" capability, and one of the most complete and interesting implementations is found in ***Adspec Programming***'s **Draw4D-Pro** ($249). Be warned, though: In spite of what software developers may tell you, there is no free lunch. Complex articulations are time consuming and involve a certain amount of plain old drudgery, but the results can be highly unusual and extremely satisfying.

Assuming you know how 3-D modeling works, the actual creation of a hierarchical articulation is fairly straightforward. In 4D-Pro, objects are created and assembled in a wireframe editor, then modeled, displayed, and viewed as a distinctly separate process. The program uses a sophisticated system of polygonal "paths" to control the motion of faceted, polygonal objects in Cartesian space. These paths exhibit the same characteristics as any other polygons and can be assigned, like any other polygon/object, to other paths.

The results should be readily apparent. If you have multiple paths and assign the first to the second, the second to the third, and so forth, all actions are carried out relative to the last "link" in the "chain," but each path is also executed in the process. Collectively, this produces an average, optimized composite of all the actions.

Examine the skeleton hand in the illustration. This represents the most complex combination of gesticulations in the human anatomy. Each element requires fairly simple movements, but, as a whole, it involves axial rotations, hinge joints, and angular movement, all of which can possibly occur simultaneously. If this can be made to work (and it can), everything else is easy.

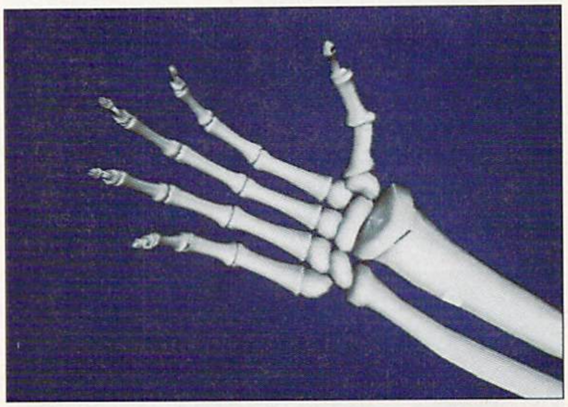
FINGER TIPS

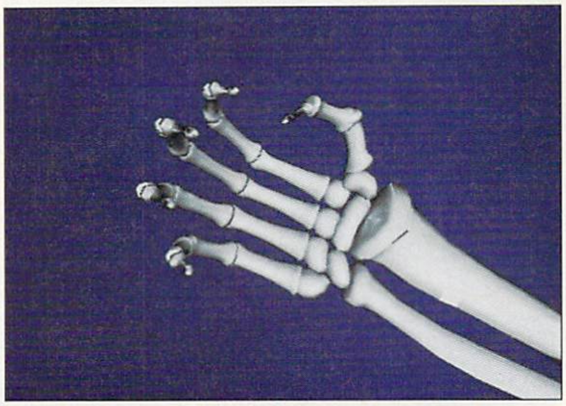
To demonstrate, let's start with a finger and work up from there. Each joint must have its own articulation, which requires a separate path. (The triangle makes the most satisfactory shape to use as a path for localized rotational motion.) Then, each joint must link with the next one. You can do this outside the object. While the path's initial size is not important, to get really satisfactory results, you must reduce each path to the smallest feasible size and locate it as close as possible to the actual pivot point after making the object/path and path/path assignments.

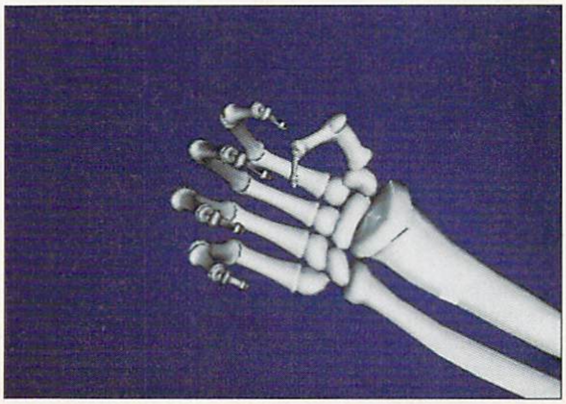
Size is important in paths, because one-point polygons are nonexistent and motion follows the path shape. If the path is small enough, any fluctuation is not apparent. The triangle's XYZ orientation is not particularly important, but it seems logical to "point" to the pivot spot.

Once you have a single group of paths and objects, use 4D-Pro's Preview feature to perform a motion test. While the previewer runs, you can manipulate the viewpoint with the normal XYZ rotation functions. Repeat the process for each additional finger, the thumb, and any wrist movements, being careful to assign things in the correct order.

You can develop interesting combinations using path manipulations with a trick of Draw4D's Deform (mor- ►







Motion chaining applied to finger joints makes animating this hand an open-and-shut case.

phing) function. This accepts repositioning as a valid transformation, which allows for relocating objects without changing shape. Not only can you establish action hierarchy, but you can also overlay alternative motion patterns for precise point-to-point movements.

For example, suppose you want to create a segment that begins with the hand open and finish with the thumb and forefinger touching. First, unassign previous actions and create a path "deform" that starts with the hand in the open position. Then, manually move the finger segments to the desired ending position and define that as the last frame of the deform. The program will spread the motion out over the in-between screens without affecting the rest of the animation action, and end with the thumb and finger touching.

Seems pretty simple, right? Where's the drudgery I promised? Well, here's the catch. What works well enough by itself may not work properly when combined with other segments.

Then comes the fine-tuning phase. It isn't hard, but its complexity depends on the number of object facets and separate movements. Also, because there is no way to adequately judge the total activity before reducing the sizes of the individual paths, making adjustments requires developing a lasting relationship with the Object Editor.

This particular project requires about 5MB, but a nonskeletal, scaled-down version or the simulation of a robot-arm can be done with considerably less memory. For speed, work with simple shapes (cylinders, spheres, and so on) to solve movement details. Because rendering objects can be slow, divide the projected animation length by six or eight and "step through" to check finished motion; don't hesitate to "begin" anywhere in the animation if you want to check a specific frame.

Phil Fitzpatrick is a veteran of commercial design and advertising who now teaches art—including Amiga graphics—at Lamar University. Write to him at 2117 Orange St., Beaumont, TX 77701.

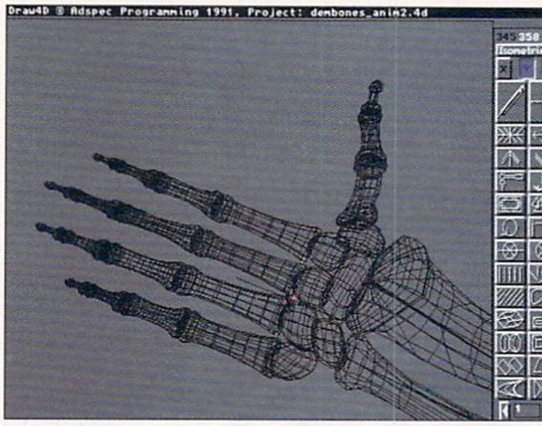
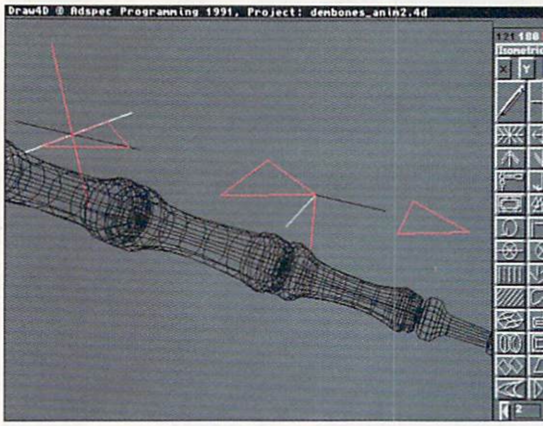
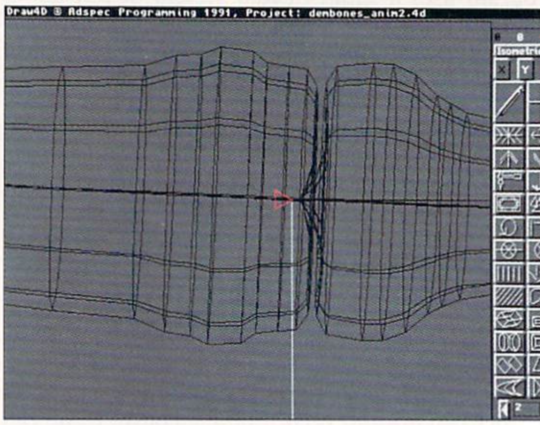


Figure 1. Dem bones in wireframe.





Left, a close-up of a single finger. The red triangles indicate motion paths.

Right, the pivot point.

MOVIE MAGIC

REAL 3D

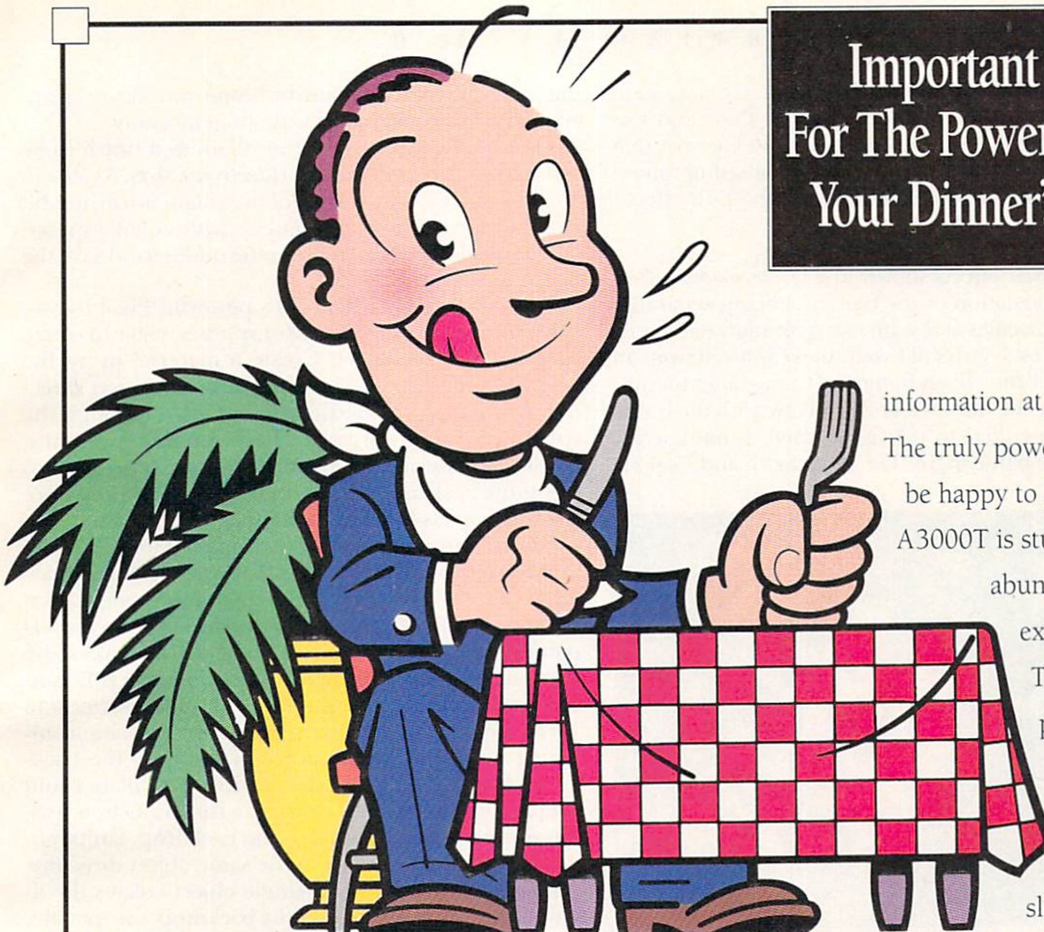
By Lennard Price

With the large selection of powerful tools available in ***Activa Software***'s **Real 3D** ($199), the hardest task is sometimes to discover the most efficient way of accomplishing each effect. Real 3D's strengths in object and scene creation give unlimited possibilities, resulting in effects that rival those seen in movies such as *Terminator 2* and *The Lawnmower Man*.

A good example is the *Terminator 2* scene in which the cyborg extrudes itself from a tiled floor. Most 3-D users would quickly identify this effect as morphing. Of course, morphing is available in Real 3D, but it is a very heavy consumer of time and RAM in all 3-D programs.

An easier way to accomplish this is to create a root object and put both the skull and floor within this object directory. By selecting a tiled material for the directory, you effectively assign both the head and the floor with the same attribute perfectly aligned. By point editing the cyborg 's head to create a skirt, you can portray a realistic 3-D stretch showing the floor's texture ►

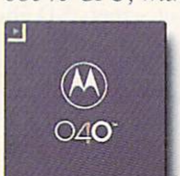
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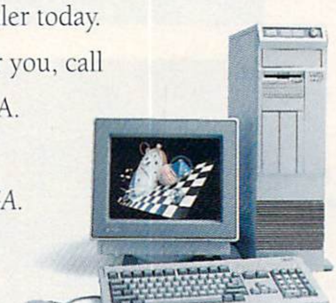
There's a co-processor slot. A video slot for internal devices. Up to four PC slots. And up to five Zorro III slots. Every Amiga 3000 series computer comes with Commodore Express™ Gold Service options.* And convenient leasing terms are available.

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disconfigure as the head rises through it. Create a path for the head, having it start below the floor and rise high enough to show the cyborg's skirt. Remember that large transition frame counts, high antialiasing values, and proper lighting will produce your best *T2* effect.

Particularly Effective

One of the best effects shown in *The Lawnmower Man* was the particulation of the bad guys being separated into large molecules and spun away. For high-end users, I would suggest a series of five frames captured from an action shot of the villain entering. Create a texture index by giving the frames a universal title with the frame numbers appended to it (e.g., frame0, frame1, etc.). Type the title name in the Txr.index field, and Real 3D automatically switches them by frame, producing an animated clean background without genlocking.

On the last frame, save the villain as a brush to be loaded into **DeluxePaint IV** (***Electronic Arts***, $179.95). In DPaint, create an outline of the villain brush and fill the interior of the blank outline with equally-spaced single-pixel dots. Now remove the outline and save the brush for use in Real 3D.

By making use of Real 3D's powerful Pixel tool to substitute the brush's pixels for spheres, you can create the particulated object. Create a material using the original villain brush and apply it to the object directory containing the particulated object. Although the spheres creating the villain have separate positions, paint the material axis in one location. Remember to substitute a villainless frame as the final backdrop once the 3-D objects have replaced the "live" villain.

For the smoothest transition from 2-D to 3-D, I suggest 2-D morphing using ***Black Belt Systems*' Imagemaster** ($199.95). This gives the scene a professional transition from the backdrop picture of the villain to the 3-D particulated villain created within Real 3D. Unlike some programs, Real 3D maintains Commodore's IFF standards, eliminating the need for picture-file conversion.

You can animate the particles in several ways, combining group and camera action. Because the background is stationary and the particulated villain could contain over a hundred spheres, a camera-action trick can do the job. Simply place the backdrop, lamp, observer, and aim positions in the same object directory. Animating these four as a single object creates the illusion that the particles, not the backdrop, are moving.

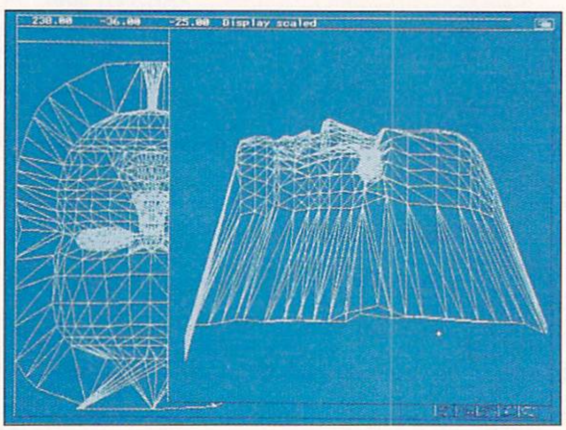
To set the molecules spinning, you have to apply motion to each sphere individually. An advanced Real 3D user could combine the wildcard and macro functions to generate extremely complicated sphere motion.

While we sometimes forget that the majority of Real 3D's object-creation tools can be used to animate, it is true that Boolean operations, lathing, fencing, and exploding can all provide for unmatched effects. Further, point editing, meshing, curve bending, fog, and morphing offer unlimited possibilities that you can use to duplicate or even surpass big-screen 3-D effects.

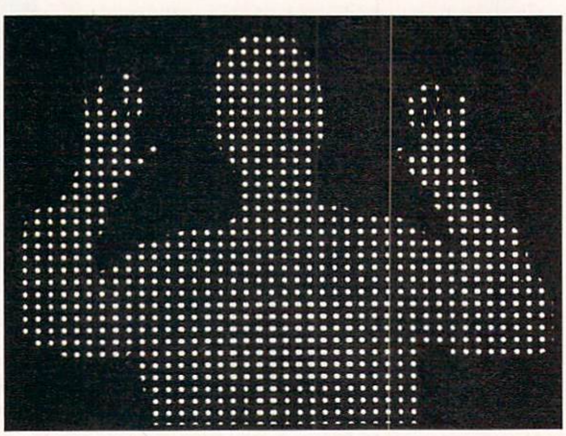
Lennard Price is a Canadian-based freelance computer artist specializing in 3-D effects. You can reach him on G.A.B.B. II (Graphic Amiga Bulletin Board) at (416)-547-1690, or write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.* ►

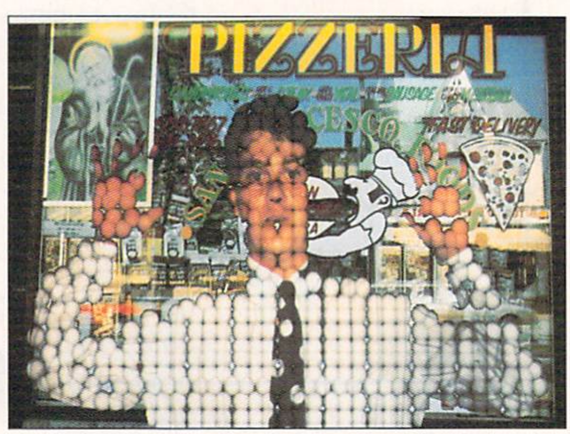


Extrusion can be a heady and uplifting experience.



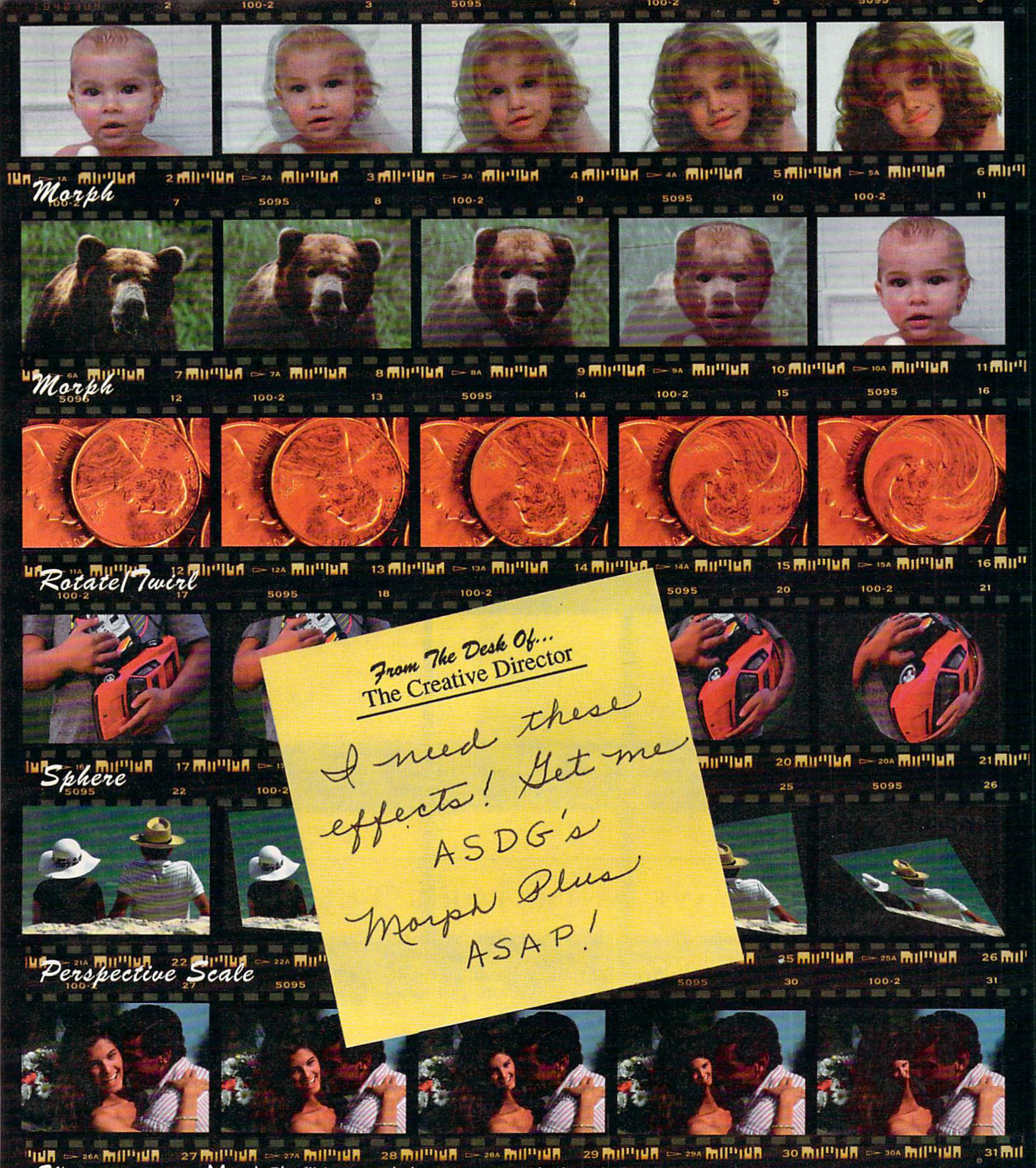
Top and side views in wireframe mode.





Left, the Pixel tool brush.

Right, the complete particulation.



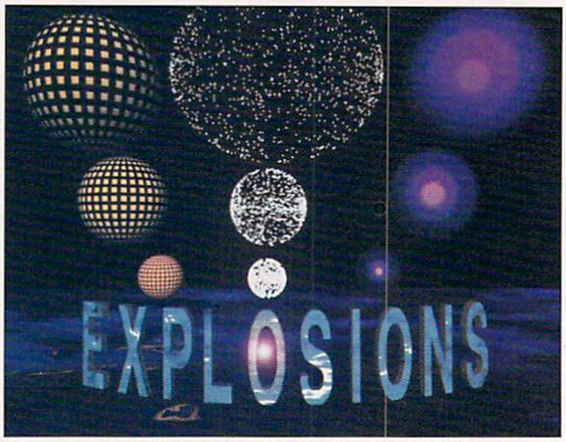
Morph
Morph
Rotate/Twirl
Sphere
Perspective Scale
Warp
From The Desk Of...
The Creative Director
I need these effects! Get me ASDG's Morph Plus ASAP!

EXPLOSIVE EFFECTS

LIGHTWAVE 3D

By Mark Swain

Explosions are natural phenomena that have long been the most popular special effects in motion pictures. Cars explode in fiery crashes, helicopters are shot from the sky, and, in *Lethal Weapon 3,* a multistory office building collapses at the feet of Mel Gibson and Danny Glover. While explosions of movie-magic caliber are still a few years away for Amiga 3-D animators, ***NewTek***'s **LightWave 3D** ($2499) has some built-in features that are sure to add shattering possibilities to your animations.



Shrink, dissolve, particulate . . . explode!

Todd Rundgren's music video "Change Myself" was one of the first LightWave animations to feature dozens of graphic explosions. The program function that made some of them possible is Polygon Shrink, found in the Object menu. The effect works by shrinking the size of each polygon within an object. You can easily animate the polygon-shrink function using a keyframed envelope.

To animate an exploding sphere, first create the spherical object and load it into LightWave. Next, select Polygon Shrink and the Animation Envelope. Create a keyframe at 30, and set its size value to zero. In the Layout menu, place the sphere in the correct location and reduce the object's size to zero. Set a keyframe at 1, resize the object to fill the screen, and set another keyframe at 30.

You can now preview the animation, but the polygon shrink will appear only in rendered frames. The final animation will look much like Rundgren's explosions, with the sphere expanding while the polygons of the object shrink into nothing.

I'M MELTING!

If the animation calls for a more nuclear, planet-bursting blast, opt for the Object Dissolve function, which is also located in the Object menu. Unlike the Transparent surface setting, the dissolve can be animated. To try a simple blast, create three spheres, each with their own surface names. Load each object into LightWave and enter the Layout menu. Resize each object to zero with the Object Size function, and create a keyframe at ►

THE LIGHTWAVE ANIMATOR'S TUNEUP KIT

THE VIDEO TOASTER 2.0 software includes some remarkable new features. If you are doing serious LightWave animation, though, some of this software might actually get in your way. To rev up your system, try these tips:

- The Toaster installs two versions each (floating-point and nonfloating- point) of both LightWave and Modeler. Only one version of each program is needed: Floating-point programs are useful only on accelerated systems, and these ignore the regular versions. Removing (deleting or saving to a floppy disk) the extra software saves you approximately 300K of hard-disk space.

The programs, which reside in the Toaster directory, are named LightWave.FP, LightWave, Modeler.FP, and Modeler. (".FP" stands for floating point.) Be aware, though, that the system does not recognize some 68040 accelerator cards as floating-point devices. If you have an 040, click on the INFO button in both LightWave and Modeler to discover which version your system is using.

If the system doesn't use the floating-point versions, then you can delete the regular versions from your hard disk and use the Workbench's Rename option to lop the ".FP" extension from the names of the remaining programs.

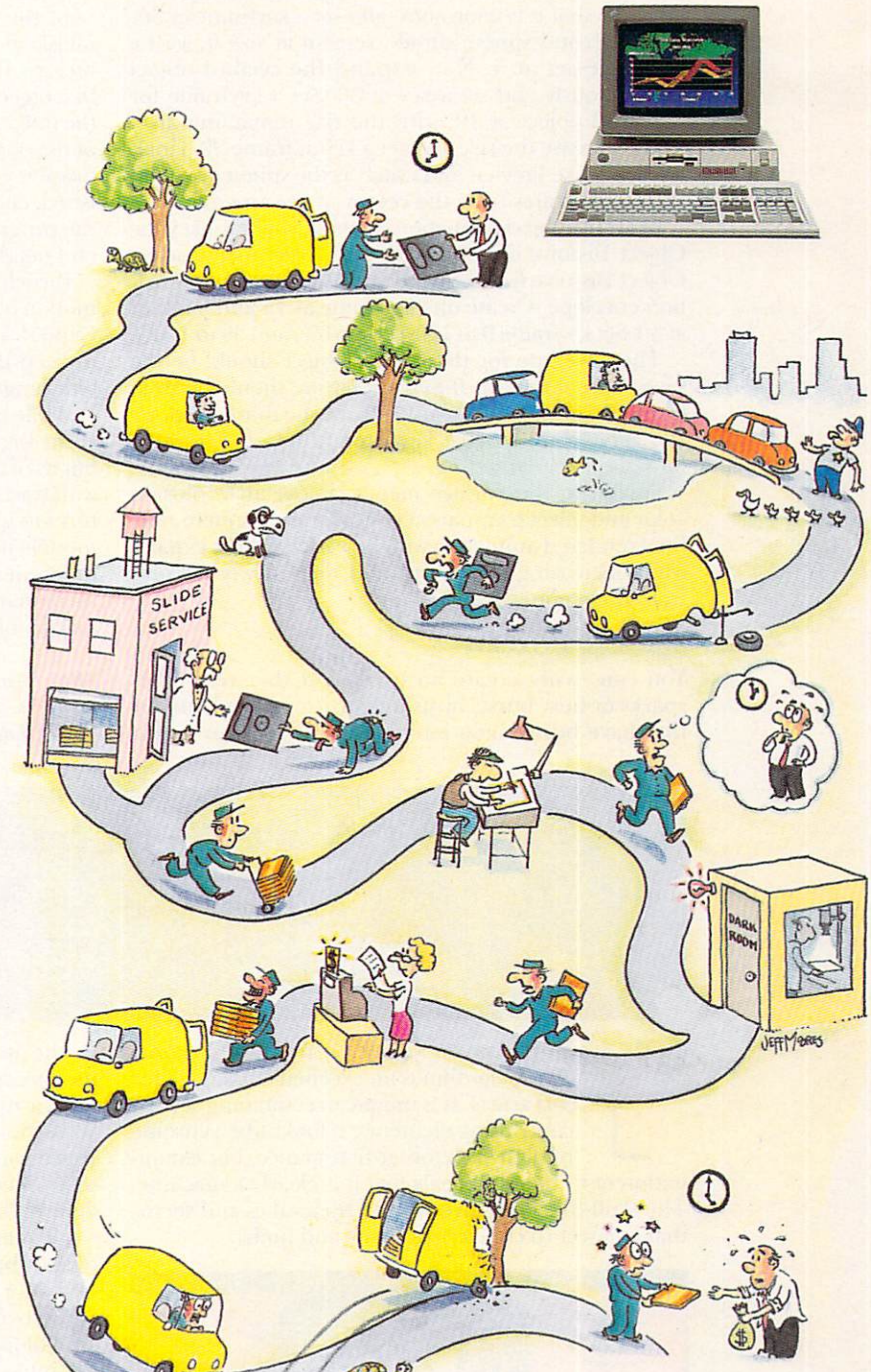
- Turning off the Toaster's TDE effects allows the Toaster to load faster and saves about 300K of memory. In the Project section of the Preferences menu, select the project named GetSmall. Next, click on the Project Load icon and exit to the switcher. The only TDE move that will remain is Dissolve.

- The Toaster's new 3-D object library is neat, but it takes a large amount of hard-disk space. Try transferring the objects you seldom use to floppy disk. From there, you can easily reload them to the system when needed.

- LightWave contains a configuration file (called LW-config and found in the Toaster/3D directory) that you can customize using almost any text editor. Tailor it to meet your needs by setting directory paths, default tension, and Expert mode. To enable Expert mode—which causes LightWave not to display message requesters when you select raytracing functions, shadows, and print resolution—simply change the config file's expert setting to 1. *—MS* □

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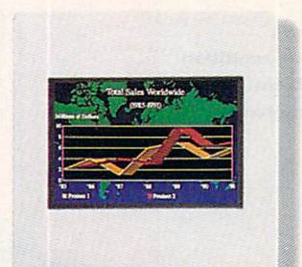
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frame 1. In setting the next few keyframes, use the Keyframe Set for selected item only. Then resize the first object so that it is enormous, and set a keyframe at 30.

The second sphere should remain at size 0, with a keyframe set at 5. Now expand the second object tremendously and set a key at 30. Set a keyframe for the third object at 10, with the size remaining at 0. Then increase the size and set a key at frame 30. Finally, click Make Preview and watch as the spheres expand at different rates from the center of the screen.

Once the object animation is set up, you must key the Object Dissolve envelopes. In the Object menu, select Object Dissolve for the first object and enter the animation envelope. Create one keyframe at 15 and another at 30. Set keyframe 0 to 100%, 15 to 0%, and 30 to 100%.

The envelope for the second object should be the same, except that the 0-percent setting should occur at frame 20 instead of frame 15. Make the third envelope the same, but replace keyframe 20 with keyframe 25—also at the 0 setting.

Finally, in the Surface menu, choose an explosion color and select transparent edges for each sphere. The final rendered animation will show each sphere expand while increasing in opacity, and then slowly dissolve from the scene.

Sparking Interest

You can easily create an explosion that resembles sparks or fiery bursts by using particles—single points that have been made into polygons. You can set up such an animation in a few minutes and be sure that it will make a good impression on your friends.

In the Object menu, load three copies of the "actualstarfield" object contained in the Object/Space directory. In the Layout menu, (camera view) move the first object to the upper-right corner of the window and the third starfield to the lower left. Next, keyframe each of the objects in the same staggered fashion as with the dissolve-explosion project. Once the keyframing is finished, click Make Preview. In the two or three minutes the program requires to calculate, gather your friends and neighbors, and get ready to watch their reactions.

Particle explosions have the added bonus of particle-motion blur. The Motion Blur function is located in the Camera menu and has an adjustable blur length. Try to keep the blur length at a medium setting; greater blur lengths tend to cause a hyperspace look.

While these explosions are fairly basic, you can mesh them together for more complex, three-dimensional bursts of animation. Try animating the surface textures with fractal noise, bump maps, or other interesting textures to give a more realistic explosion. Or, try making models into modules and explode an object in many different directions. LightWave is full of explosive animation tricks, and experimenting is the best way to unlock its blasting power.

Mark Swain is a California-based freelance writer, video post producer, and computer animator. Write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

Organic Machinery

Caligari Broadcast

By Paul Safr

The cyborg endoskeleton from the original *Terminator* film is an excellent challenge for 3-D artists. It is unique in combining several contrasting elements. It looks like a chrome human skeleton at first glance, but examination of its details reveals that it is clearly a machine. The skull-like head gives way to hydraulics and servos that connect to curvaceous joints and limbs.



One rendition of man and machine.

The model's fusion of cybernetics and organics made me choose ***Octree***'s **Caligari Broadcast** ($1995), rather than a more mechanical modeler like that of LightWave, or a more organic one such as Hash Enterprise's Journeyman. Caligari combines these two elements in several biomechanical modeling tools called free-form deformations, or FFDs.

FFDs are composed of simple shapes (cylinders and cubes) that encompass the shape to be deformed. By grabbing the points that make up the simple objects and moving them, you affect the object enclosed. It is kind of like pulling on bubble gum or poking your finger into clay, and it can be very addictive.

I began by applying a cubic deformation to a basic sphere primitive. After surrounding the sphere with an FFD, I stretched out a portion of the cube to form an asymmetrical ellipsoid. I then widened the smaller, pointed end and manipulated it to form an upper mandible.

To create the eye sockets, I subdivided my FFD cube into a fine mesh. On the surface of the FFD, I selected a group of points located roughly at the pupil, and pushed them inwards till a deep depression resulted. I used the same method to pull at the vertices that would eventually form the edges of the eye socket. ►

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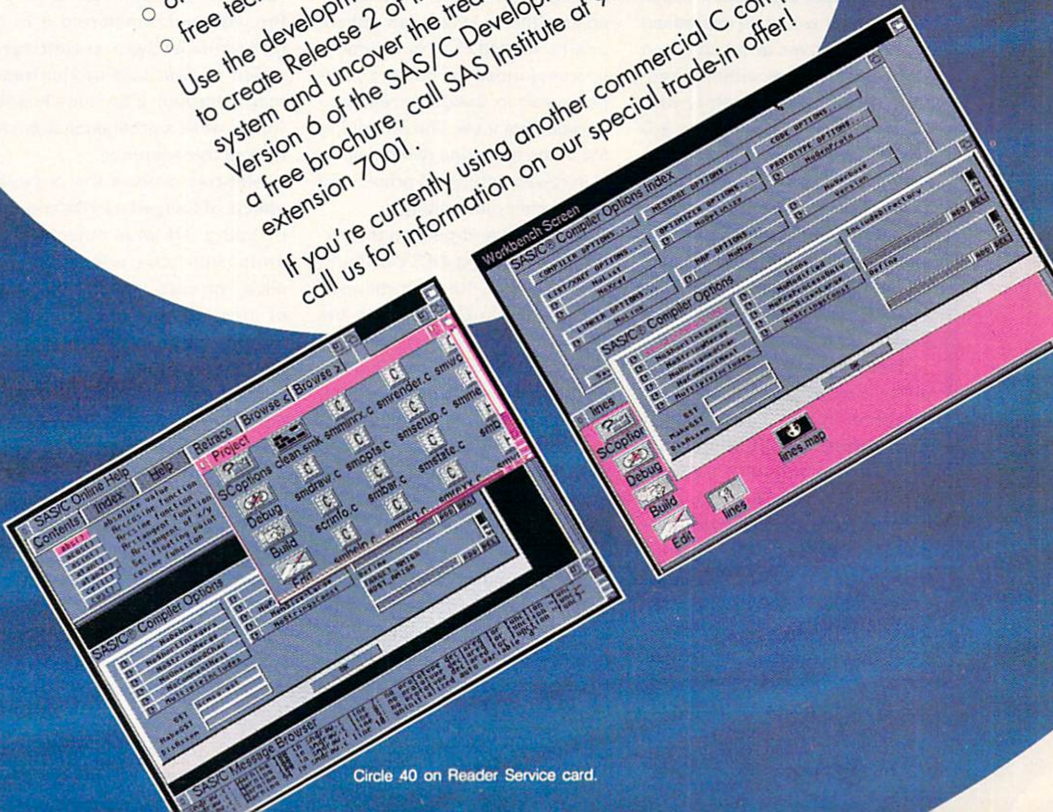
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After finishing the main parts of the face, I used the Slice function to cut the deformed sphere in two. I discarded the unmodified half and mirrored the modified portion to create a symmetrical head. Then I glued these two pieces together.

An anatomy text helped determine a suitable cross section for the lower jaws. I created it, extruded it across several sections, and eventually deformed it just slightly, to make it appear more bone-like. The teeth, severely deformed hemispheres, were rendered more often than any other part of the cyborg in order to get the textures right.

To tweak certain sections after seeing preliminary images with all the parts in place, I used the Render Object function in the Attributes section. This feature can save you a great deal of time by rendering only selected objects in a scene and letting you test local lighting and surfaces without rerendering the entire object.

MOVING MAN

Proper animation requires correct hierarchical assembly of the individual pieces that constitute the skull. To begin with, gather all your parts and determine which will move independently. Assemble the independent pieces and make the remaining objects "children" of the parts they should move with. For instance, you would assign the teeth to be children of the jaw. Working this way allows logical assembly of simple sets of modules. This hierarchical construction lets you simply load the finished figure into the Object Editor, select individual parts to affect, and move them by using the up and down arrows in the Scene Editor.

By selecting the Spline-based Movement gadget and tweening small, progressive motions, you can achieve very life-like animation. While some people prefer to work 30 or even 60 frames apart, I find that keeping track of a very complex hierarchy can get confusing with broadly spaced tweens, so I prefer to work in eight-frame chunks. Building small segments in 3-D gives you greater control: If your wireframe preview is unsatisfactory, you can simply go back and alter the keyframes.

For the fiery ambience, I used a digitized image of flames. I converted the full file—plus a few small cropped sections—to Caligari's Rendition (.6rn) format using ***ASDG***'s **ADPro** ($299). The main image became the background and part of the environment map, and I applied the smaller sections to some surfaces as texture maps. Converting the .6rn files into textures using ADPro's full-smoothing option ensured that the surface would not show pixelization during close camera passes in an animation. The finished sequence was rendered in Rendition format as well, using maximum antialiasing of object edges. ■

Paul Safr is creative director of MEDIA Innovations, a Canadian company specializing in Amiga-based multimedia and production systems. Write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

AMIGA PROFILE

Cover Klatch

"THE MEASURE OF man is what he does with power," said Pittacus. No doubt the ancient Greek philosopher would be impressed with what cover artist Stephen Menzies has done with the Amiga's power. We certainly are. "Brightside," this month's 3-D cover image, first appeared as a 14×20-inch photographic print in the recent Montreal computer-art exhibition, "Memoires Vives." Menzies created it with the help of his RCS Fusion Forty-accelerated, 37MB A2000 and Octree's Caligari Broadcast 2.1.

Every component of "Brightside" is a 3-D object; the scene contains nearly 125,000 polygons. Menzies did about 95% of his modeling with Caligari Broadcast's new FFD (free-form deformation) lattices and auto subdivision/ smoothing routines. These features let you mold simple primitives into complex objects and offer great flexibility for varying objects. By manipulating control points on the lattice encompassing a primitive (each object in this image started as either a 32-section sphere or a 10-section cone or cylinder), he transformed the object's polygon mesh in Caligari's real-time perspective view. The remaining 5% of the modeling (which mostly involved setting up primitives) he did via point editing.

Menzies hand-painted the texture maps using DCTV's Paintbox software. He then mapped the objects in Caligari with the UV-coordinate feature. Looking closely, you may notice that the textures, many of which repeat, follow the objects' shapes without incorporating the distortions that regular spherical, cylindrical, and planer projection-map techniques impart.

Menzies applied Gouraud shading to most of the objects, and rendered the scene at a 3300×2200 1:1 resolution. To produce the cover print, he converted the original 12MB, 32-bit Rendition file to a 24MB, 32-bit Targa file through ASDG's ADPro. He then transferred it to a Mac-formated Syquest cartridge, which SyGraf Lab in Montreal output through a Solitaire Image Recorder as a professional-quality 4×5 transparency.

Menzies praises the organic effects of Caligari's FFDs and UV mapping. "If your objects and animation look convincingly alive," he says, "the possibilities of creating new and believable fictions open up wide." He is now designing fictionalized characters to take advantage of powerful animation features that are due to become part of a Caligari upgrade.

Menzies has a fine-arts background and has worked in Amiga 3-D since 1988. He has won first-place awards in several shows, including AmiExpo '90, AmigaWorld Expo '91, AmigaWorld Art & Video Competition '90, and the



Festival International du Film par Ordinateur '89 in Montreal. He teaches 3-D computer animation in Concordia Unversity's Amiga-equipped computer lab. He is also one of several artists working on an in-house computer character-animation film at Montreal's Taarna Studios, using the high-end, proprietary, 3-D animation software on the SGI platform.

"I maintain a strong interest in both personal and high-end platforms," states Menzies. In "Memoires Vives" he displayed work created on both Amiga and SGI, and is "equally satisfied with what I have been able to do on both." ■

The 2D-3D Punch

For many projects, integrating 2-D and 3-D animation techniques is the key to creating a successful finished work.

By Rusty Mills

FOR AN ANIMATOR, one of the outstanding benefits of using the Amiga is that it enables you to combine the natural look and feel of conventional 2-D animation with the ease and flexibility of computer-generated 3-D animation. Ironically, most professional productions are not designed for utilizing this capability.

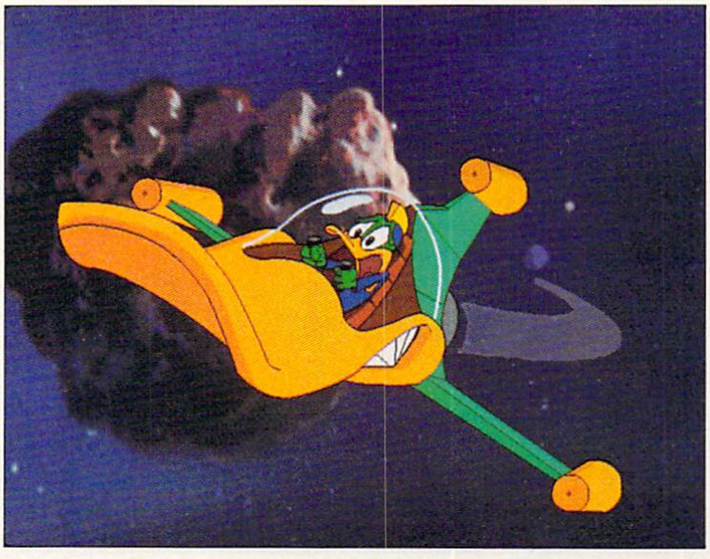
A recent project, however, gave me the opportunity to marry the two techniques. By describing in some detail just how this was accomplished, I hope to demonstrate the advantages involved in combining 2-D and 3-D animation. In the final section of the article, I will outline some ways you can best put these techniques to use in your own work. *(To locate the vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 94.)*

IMAGINE'S JUST "DUCKY"

My opportunity arose when I was working on a recent episode of *Tiny Toon Adventures* for Warner Bros. and Steven Spielberg that's scheduled to air early in the '92–'93 season on the Fox network. I was storyboarding a sequence in which the character Plucky Duck is zapped into an outer-space arcade game. While visualizing the story, the possibility of using Imagine (**Imagine 2.0**, $450, ***Impulse***) to create and animate the necessary 3-D spaceships became apparent.

Using the Amiga, I could create chase sequences in outer space without worrying about the amount of time an animator would have to spend working out the perspective of the spaceships. My main concern was not to lose the feel of conventional animation, in which animators draw each frame by hand. Often, in combining conventional and computer animation, the two can clash in a distinctly uncomfortable way because computer images may appear cold and unnatural against hand-drawn characters.

While I worked on drawing the storyboards, I also experimented with Imagine to discover the best method for constructing the spaceships. The first hurdle was the "duck bill" front on Plucky's ship (see the illustration above).



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In Imagine's Detail editor, I added an axis. Selecting this axis, I then added lines and created an oval-like shape. Using the Drag Points command, I positioned the points in all windows until I shaped the front edge of the beak. I copied the object and reshaped it repeatedly until I had an outline of the bill (see Figure 1, left). After selecting all of the individual objects, I used the Skin command to create a solid object (see Figure 1, right). As a help to understanding the concept behind this method of construction, think of balsa-wood airplane models. You construct a frame of balsa wood and then stretch a "skin" of paper over this framework. ►

I used the same method to make the dome and tail sections of Plucky's ship. By constructing a cross section (again creating an axis and adding lines) in the shape of an elongated teardrop lying on its side, I then created the wings. Finally, I extruded the cross section to a length of 200 and resized by .5 in the x and z directions for tapering. The jets were extruded and resized disks.

I designed the model in pieces, grouping them so that later I could easily make changes, such as adding the teeth that are prominent in the finished illustration in Figure 2, left. (I created the teeth using the same method as for the bill—see Figure 3, left.)

To produce the Martian saucer ships that are chasing Plucky in the finished illustration (see Figure 2, right), I used the same procedures as for creating Plucky's ship (Figure 3, right). Once approved, both ships were generated as 360-degree rotating animations. Using **The Director 2** ($129.95, ***Right Answers Group***) and GraphicDump from the Workbench, I printed the ANIM files one frame at a time on a Star NX-1000 printer to obtain the printouts used for the model sheets. With these, we could also ascertain whether the process of registering and cleaning up printed images (described further on) would be feasible. This proved to be a much easier task than we had originally anticipated.

SCENES AND PATHS

With the storyboards now finished, we moved on to building the scenes. This involved two separate processes. My director needed to time the scenes based on the "exposure-sheet" readings (readings noted down by an editor who listens to the soundtrack, frame by frame). At the same time, before receiving the timings, I had to construct the basic scenes. Imagine provided all the capabilities needed to handle the different sets of requirements demanded by each scene. It provides hidden-line wireframes in high resolution, path acceleration, pose-to-pose animation, and speed.

With Imagine, I could also squash and stretch the spaceships as required on particular frames. To do this, you simply resize the object on a chosen frame in the Stage editor. Then save a size timeline (pressing the right-Amiga key with 9) and adjust it in the Action editor to make the squash or stretch occur over a selected number of frames. For instance, if in frame 1 the object appears in normal proportion but by frame 7 you need it to be at maximum squash, then adjust the size timeline extending between frames 2 and 7 to begin at frame 5. This causes the action to take place over only the final two frames, rather than over the entire sequence. Timeline adjustments like this help give more "snap" to the overall timing of the scene.

In the first scene, I used a technique with Imagine that has worked well in the past to create a more natural feel to the motion. After creating a path for Plucky's ship, I copied and pasted it at a slight offset from the original. I then shortened the copy and attached a target for the camera to follow. Doing this gives the illusion that a cameraman is trying to follow the spaceship, thus making the movements seem more natural.

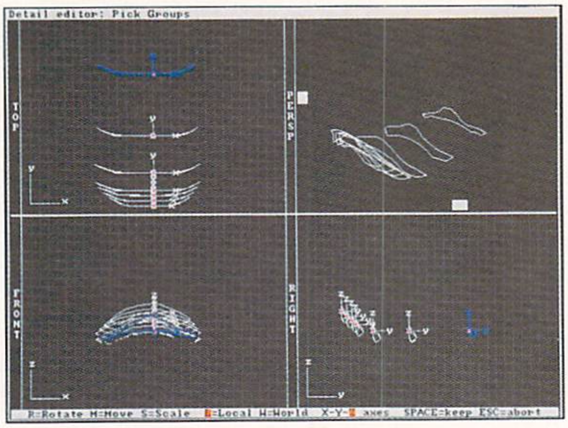
Also, when I built these scenes in the Stage editor, I used a frame count of 10. This kept the test animation times down to a minimum, while still giving me a basic idea of the action. To aid in this process, I set the speed slider on the Animation requester to Slow.

Many of the first scenes I constructed used paths, and it is important to keep in mind that even though they provide a nice smooth flight pattern, paths make it difficult to guarantee an object's position on a particular frame. (Later on, after this first batch of scenes had been reviewed by the director, I found I would need to make refinements to certain movements using the more traditional "pose-to-pose" method described further on in this article.)

FINE TUNING AND FINISHING TOUCHES

With the timings in from the director, I could now finalize the scenes by adjusting the frame counts and path accelerations in Imagine's Action editor. After previewing the animations in the Stage editor, I generated each scene as hi-res, black-and-white wireframe ANIMS. These were then transferred to videotape for the director to approve. Most of the scenes required special timings, and some involved "staggering" (a method in which drawings are placed out of order to produce a jittering effect).

To accommodate these situations, I used **The Animation Studio** ($179.95, ***Walt Disney Computer Software***) for animation playback because of its enforced frame-rate and exposure-sheet capabilities. A way to ensure that a scene will play at the enforced rate is to delete any unused cels and most of the looping frames placed at the end of DPaint (**DeluxePaint IV**, $179.95, ***Electronic Arts***) ANIMS. If you do so, your scene should flow smoothly from one frame to another.



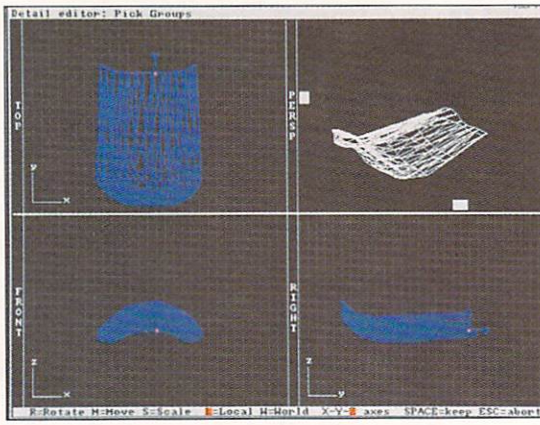


Figure 1. In Imagine's Detail editor, copied and altered cross sections create the frame of the duckbill front of Plucky's spaceship (left), while adding a "skin" completes the duckbill (right).

As mentioned above, when we reviewed our scenes, we discovered the need to make some timing changes and introduce alternative motions. Some scenes needed "anticipation" (an animation technique in which a character makes a slight move in the opposite direction before thrusting forward into an action), while others required more "snap" in the movements. This is where using "pose-to-pose" techniques comes into play to eliminate some of the even timing created when the computer averages object positions along a path.

Pose-to-pose is a form of key framing in which you pick out the most extreme positions of an action while skipping over the intermediate frames. Realizing that this was needed, I began to experiment with Imagine's position and alignment timelines. With versions 1.1 and 2.0, you can place (pose) an object on selected frames and keep it there using the Position Timeline (right-Amiga key/7) and Alignment Timeline (right-Amiga key/8) commands. With these, you can place timelines in the Action editor, starting at the end of the previous timeline and ending at the current frame. (You can also make adjustments to accommodate particular timings.)

Using this method enabled me to create anticipation and, in certain cases, entire scenes. I employed it for scenes where paths were too smooth or where they did not place the ships at positions indicated by the director on particular frames. (The more I used this technique, the more I came to realize I could build scenes faster and more effectively with it.) To provide the extra snap required in scenes that had been created using my original paths, I gave those paths tighter curves and further rotated the banking of the ships. I also deleted some frames to get rid of artificial-looking smoothness.

The greatest challenge came when a scene required the computer drawings to work right into hand-drawn images. I digitized the animator's drawings using **Digi-View Gold 4.0** (formerly available as a separate package for $199, but now part of ***NewTek***'s **Digi-View MediaStation**), which made it easy to scale the drawings to match the ship sizes in Imagine. To help the computer portion of the scene work directly into the hand-drawn section, I selected a point in the scene where the ship "snapped" into a pose, and then added a hand-drawn blur to make the transition seamless.

After completing all the scenes and adjusting the timings, I printed the frames. Using DPaint IV's Move requester, I stamped cross-hair brushes in three different places on every frame of the ANIMS to ensure proper registration. Employing The Director 2 and GraphicDump, I printed one frame at a time and then pasted each individual page onto animation paper (special sheets registered with a three-hole/peg system), using the cross hairs for registration.

Once we had cleaned up any unclear images, we shot the scenes on a single-frame video recorder. Later on, cleanup artists did a final cleanup of the scenes for the animators, who placed the characters inside the ships. After all the animation was completed and cleaned up, the drawings were photocopied onto celluloid and painted in the traditional way.

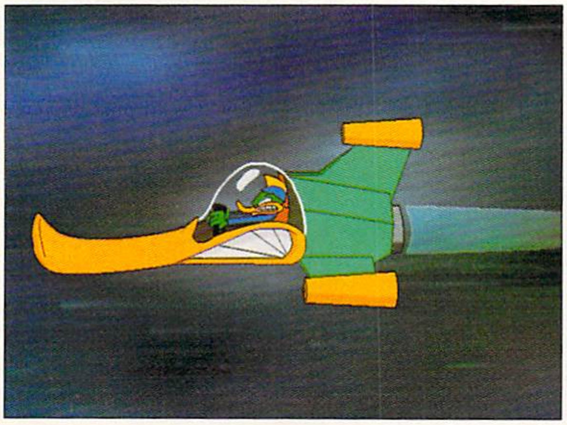
FROM THE PRO STUDIO TO YOUR STUDIO

A number of the procedures outlined above—especially much of the work done by hand—are dictated by the particular setup and protocols of a typical professional production studio. For instance, printing and registering the 3-D wireframe spaceships was the best way to integrate the computer animation into Warner's already established production pathway. Many of my personal animation projects, however, allow me to use the Amiga for all phases of the production. While I hope you find some of the above techniques useful, I want to conclude with a few tips from my personal work that could be particularly valuable to your own animation efforts.

For example, wireframe ANIMS like the ones used for *Tiny Toon Adventures* can be brought directly into The Animation Studio and DPaint IV. This makes it easy to create 3-D environments for 2-D characters to live in. To ensure continuity and cut down on rendering time, build your 3-D environments like movie sets. Put detail only where it will be seen. Eliminate unseen walls and objects. After a "set" has been built, you may freely move around and position your camera as needed. Using sets saves you from having to build a new environment for every scene.

Using a program like Imagine to build vehicles eliminates the painstaking process of animating them by hand, which means you can spend more time animating the characters. Also, when you build an object or environment, take the time to get it right. Then you won't have to worry about it any more.

When a character must stay in close contact with a 3-D object or environment, I animate directly on the Amiga, using The Animation Studio or DPaint. This takes care of the registration problems that occur when I'm using digitized animation with 3-D animation. When registration is not a problem, I can print wire- ►



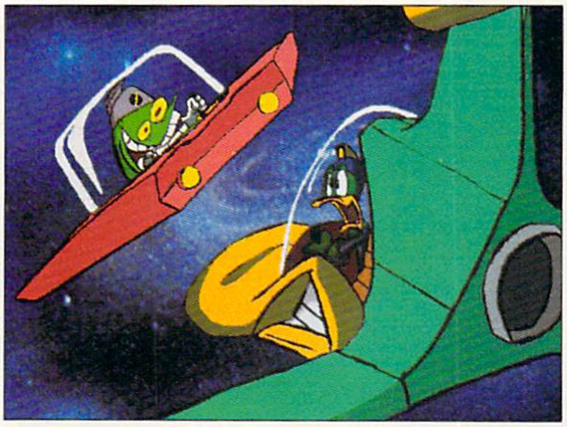


Figure 2. Two completed frames from a Plucky Duck episode of *Tiny Toon Adventures*. Both Plucky's spaceship (left) and the saucer ships of his Martian pursuers (right) were created using Imagine.

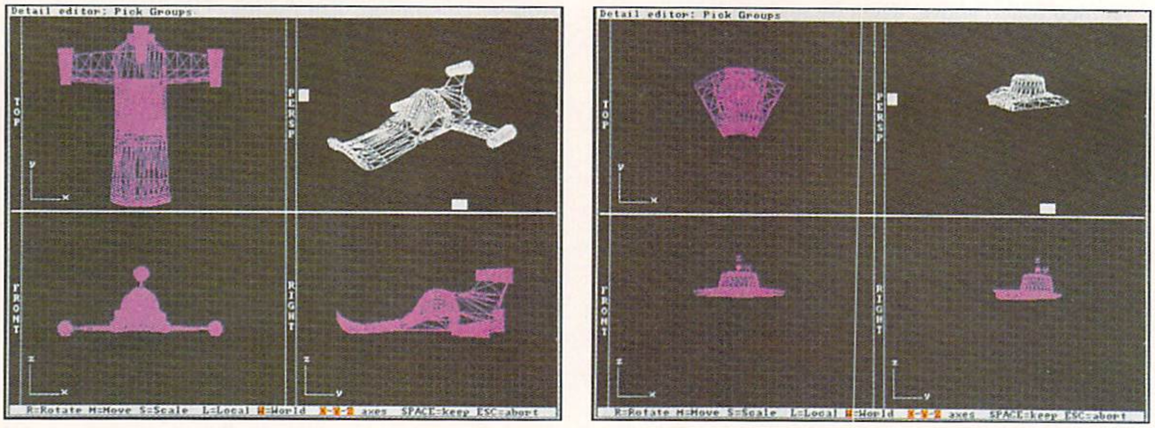


Figure 3. In Imagine's Detail editor, you can now see the completed wireframes for Plucky's spaceship (left) and the Martian saucer ships (right).

frames and animate on paper, and then digitize the animation afterwards.

In this way, you can clean up the animation and color it in DPaint. If you need more colors than are available with DPaint, split the animation into levels (usually by character). This allows each level to have its own palette. The levels can be composited in 24-bit format using a program such as **AD Pro 2** ($299, ***ASDG***). Then, if required, you can output the animation to film or video.

Remember, if the computer does not give you the results you want, use your imagination and try alternative techniques. After all, you are the creator, and the Amiga is one more tool you have at your disposal to get the job done. ■

Since writing this article, Rusty Mills has become Animation Director at Warner Brothers. Previously, he worked for a number of studios on animation projects, including An American Tail *for Sullivan-Bluth, and* Goofy *for Walt Disney. Write to him c/o* AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

AW Shucks!

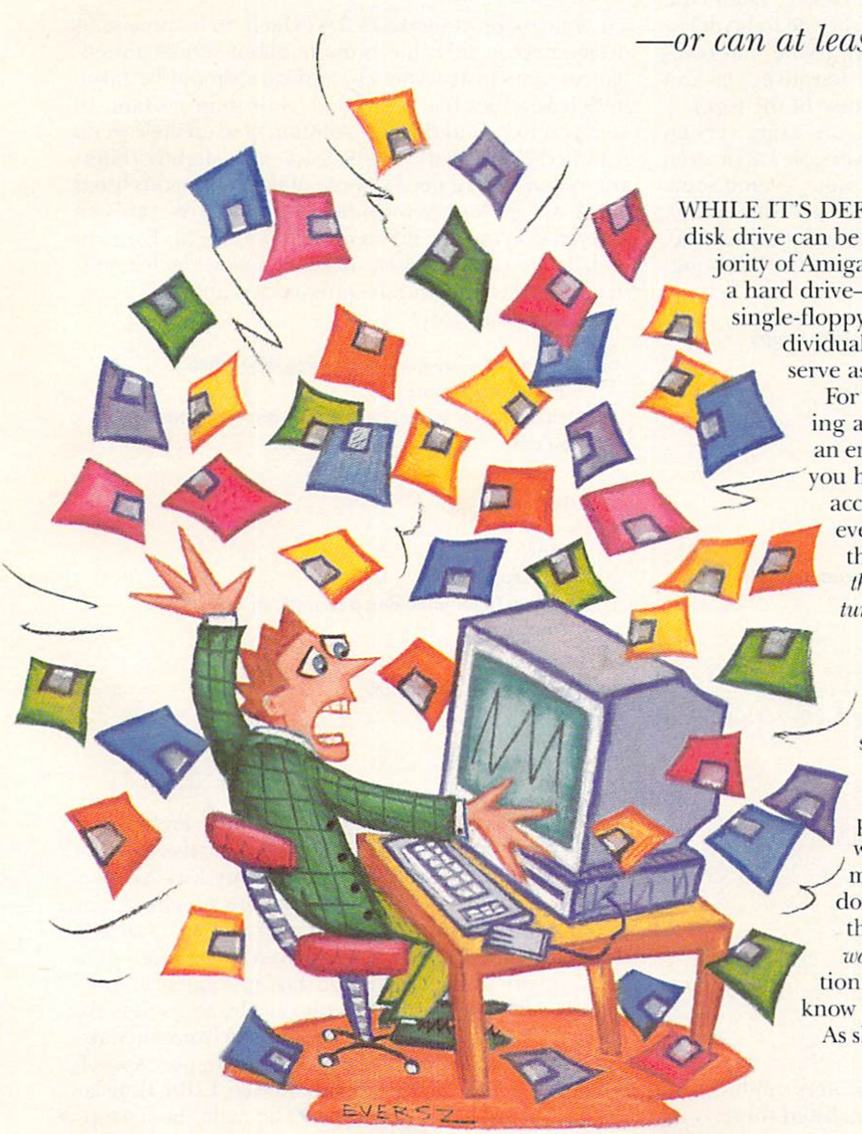
Item: In our "Art in an Instant" article (July, p. 34), one illustration in the Animated Clip Art section was a flying cartoon bird. No write-up about the bird appeared because we discovered that the phone back at the "nest" was no longer in service, and we therefore could not get the information. Long Island Media Group, our feathered friend's creator, has since informed us of their new phone number: 516/265-9697. Their street address is 2 Sherbrooke Drive, Smithtown, NY 11787.

The bluebird is part of Long Island Media's six-disk Wedding Animbrushes collection. The set also contains cartoon animations of flying cupids, an opening book, ringing bells, some nice twinkles and sparkles, and several full-screen animations of a church door opening to color 0. While Geoffrey Williams gave the package a four-star rating, he noted that the colors are not video safe. ■

The POWER of 1



If you think that storage limitations and endless disk swapping make single-floppy computing an impossibility, take this survivalist course and learn that "one can be fun" —or can at least get the job done.



WHILE IT'S DEFINITELY a curse, working with only one floppy-disk drive can be less frustrating than you think. Although the majority of Amiga owners probably have dual-floppy systems—if not a hard drive—there are quite a number of users who do fit the single-floppy profile: novices, people on a tight budget, or individuals who have bare-bones A500s or old A1000s that serve as backups to more powerful systems.

For the single-floppyist, even a basic task such as making a back-up copy of your Workbench disk can seem an endless chain of disk swapping. And, of course, once you have gotten a taste for some of the things you can accomplish with the Amiga, you will probably feel even more confined. Take heart, however; there are things you can do to get by reasonably well. *(To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 94.)*

CLEANING HOUSE: FILE DELETION

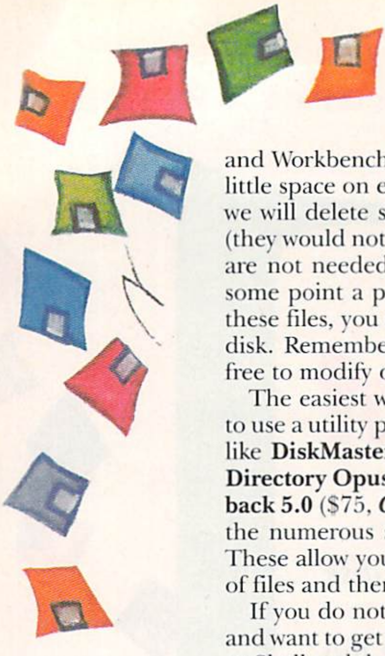
The place to begin is with your copy of Workbench, where you can free up some valuable disk space by deleting a number of files or programs.

But before going any further, make a backup of your Workbench disk, put the original in a safe place, and work with the backup. If anything goes wrong, you can start over with a new copy of your master disk. (If you are brand new to the Amiga and do not know how to copy a disk, get out the copy of the *Introduction to the Amiga* or *Using The System Software* that came with your computer and read the section on duplicating disks. For now we will assume you know the procedure.)

As shipped from the factory, Workbench 1.3 is 96% full ►

BY ROB HAYS

ILLUSTRATED BY KIM WILSON EVERSZ



and Workbench 2.0 is 94% full, which leaves precious little space on either for anything else. While the files we will delete should not be considered unnecessary (they would not have been included if they were), they are not needed in most day-to-day operations. If at some point a program you are using requires one of these files, you can always restore it from your master disk. Remember, these are just my suggestions. Feel free to modify or ignore them to suit your needs.

The easiest way to delete a large number of files is to use a utility program, such as commercial programs like **DiskMaster II** ($69.95, ***Progressive Peripherals***), **Directory Opus** ($59.95, ***INOVAtronics***), and **Quarterback 5.0** ($75, ***Central Coast/New Horizons***), or one of the numerous shareware/public-domain equivalents. These allow you to use the mouse to highlight names of files and then delete them.

If you do not have access to one of these programs and want to get started right away, you can use the CLI or Shell and the Delete command. To do this, double-click on either the CLI or Shell icon and then change the current directory to the one you want to trim. For instance, if you wish to delete files from the C: directory, type cd C: and press the Return key. Then type DELETE, followed by the name of the file to be deleted, and press the Return key again. (Note that commands and filenames are not case-sensitive; you can use uppercase, lowercase, or a mixture of the two.)

For now, we will assume that you are using version 1.3 of AmigaDOS, but if you have version 1.2 or even the new 2.0, the principles are the same, even if some of the specifics change. If you have upgraded to 2.0, we will cover the differences further on in this article.

Start with the C: directory and delete the following:

ChangeTaskPri
DiskChange (unless you have a 5¼-inch floppy drive attached)
DiskDoctor
Edit (or Ed)
Fault
FileNote
Join (leave this if you have 2.0)
Lock
Relabel
RemRAD (unless you use the recoverable RAM disk RAD)
Sort
Status

Unless you frequently use AmigaDOS scripts, you can also delete:

Ask
EndIf
EndSkip
Eval
Lab
Search
SetDate
Skip
Which
Why

In the devs directory, check the printers subdirectory and delete any unnecessary printers listed there.

Because the font normally used by the Workbench is stored in ROM in the computer and not on the disk, you can delete everything in the fonts directory unless an application needs a specific font. If you do keep a font—say, garnet—be sure to keep both the subdirectory garnet, which contains the different font sizes, and the file garnet.font. Do not delete the fonts directory itself in case you need to add a special font later.

As you do not have a hard disk, delete CopyPrefs and CopyPrefs.info from the Prefs directory and Startup-Sequence.HD from the the s: directory. (From here on, we'll assume—and not specify it each time—that you are also deleting the .info file for each file.)

In the System: directory, unless you have expanded memory, you can delete MergeMem and NoFastMem. Also delete FixFonts while you are there.

After you have installed the proper printer driver for your system, you can delete InstallPrinter from the Utilities directory. You can also delete any of the utilities that you do not use regularly. Remember, the files you delete are always available from your master disk if you need them. The only ones I kept were More and Clock.

WORKBENCH 2.0 TIPS

The release of AmigaDOS 2.0 (which, to be precise, is designated as 2.04) has brought about significant enhancements to Workbench, and care should be taken in deleting files that seem useless or unimportant. In fact, you may find the best solution is to create several trimmed-down Workbench disks, each slightly different to fit different needs. Some of the commands listed above are no longer included on the new Workbench disk, so don't worry if you cannot find them. For general, day-to-day purposes, make the following deletions in addition to the ones recommended above.

In the c: directory:

CPU (unless you have something other than a 68000 processor)
MagTape (unless you have a tape drive attached)
SetFont

In the s: directory:

BRUtab
HDBackup.config
PickMap (after choosing a keymap to use with this disk)

In the System directory:

AddMonitor
SetMap

In the Prefs directory, delete any of the Preferences editors that are not needed on that particular disk. Be sure, however, to retain the subdirectory Env-Archive.

The deletions we have made require no alterations to the standard startup-sequence for either 1.3 or 2.0. If you are interested in making even more room on a disk, and are willing to edit the startup-sequence, there are other files that you can remove. The key is to make sure you remove the reference to the file from the startup-sequence. For instance, if you do not require speech capability, delete DEVS:Narrator.device, LIBS:Translator.library, and L:Speak-handler. Then edit the startup- ►

All photographs are of actual DCTV screens.

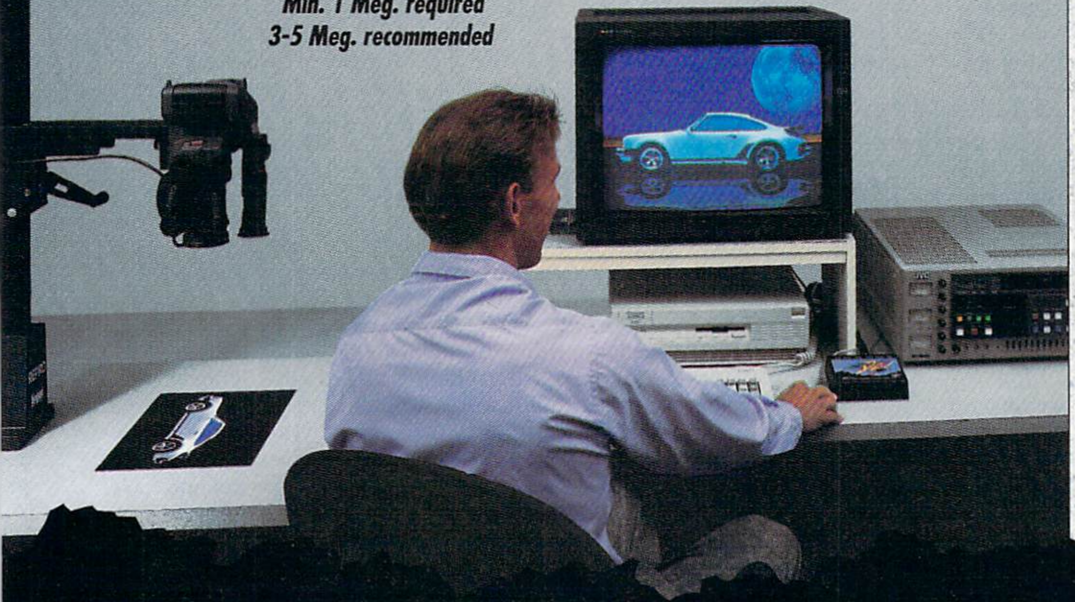
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sequence to remove the command MOUNT Speak:.

If, for some reason, a program fails to work later on, check the startup-sequence on the boot disk for that program. It may be expecting to use some resource that you have deleted, which you will then have to restore from your master disk.

At this point, if you have deleted the files I recommended, your Workbench 1.3 disk has almost 320K of free space, compared to approximately 30K on the standard disk. With Workbench 2.0, you have added more than 100K of free space to your disk (plus having learned how to recover even more should you need it). This in itself is a respectable accomplishment. But wait; there's more!

Putting on the Squeeze: File Compression

Many different file-compression utilities—such as **ARC**, **ZOO**, **LHARC**, and **PKAZIP**—are available as PD/shareware. All use methods of data compression to reduce the size of files, which, in turn, reduces the amount of time needed to transmit them. NASA uses the same technique to send data back to Earth from its deep-space probes, and we use it to hold down the monthly bills from GEnie and CompuServe.

You could, in theory, compress the files remaining on the Workbench disk to create more room, but that would be more trouble than it's worth. You would have to type in decompression commands each time, and application programs would not run at all because they could not find the commands they require.

Luckily for all of us, this problem has been elegantly solved by Nico Francois' program **Power Packer**. (Version 2.3b is available as shareware, ***Fred Fish*** #253, and you can obtain a commercial version, **Power Packer Professional**, from ***Jumpdisk*** for $29.95.) This fantastic program will compress data files, AmigaDOS commands, and most commercial programs.

Power Packer is completely mouse-and-menu controlled, so there are no complicated commands to learn. Click on the name of the file you want to compress, select the amount of compression, and then save the new, smaller program back to your disk. It will add a small decompression routine to the compressed programs, so all you have to do is double-click on the icon as usual. The program automatically decompresses itself in just a few seconds and begins running.

Power Packer has five different levels of compression for different situations. For example, the standard size of the Dir command is 8772 bytes (all of the file sizes in the following examples refer to Workbench 1.3). Choosing the fastest compression shrinks this to 6028 bytes, including the automatic decompressor, and takes about 13 seconds to complete. The medium setting yields a size of 5592 bytes in 36 seconds. If you opt for the greatest compression, you get a file size of 5528 bytes after 75 seconds.

The documentation for Power Packer mentions that the "best" setting for maximum compression is not always the best one to use. For very large files, that setting can result in extremely slow compression times. Fortunately, the program includes a script mode to use in such instances, allowing you to compress a whole series of files automatically.

When you run the new Dir program, it decompresses and begins executing in approximately one-half second, a very small amount of time considering you save over 3000 bytes of disk space. A larger program takes a little longer to decompress, but even WordPerfect takes less than six seconds—with space savings of over 46,000 bytes. That's a most agreeable cost-to-benefit ratio!

Go through your trimmed Workbench disk and see which remaining files can be compressed to recover still more disk space. Some of these are already so small that I did not bother to shrink them. A compressed Ed, however, saves quite a bit of room.

Speeding It Up: Disk Optimization

Now that you have made room for more programs, is there anything you can do to speed up actual disk operations? Yes, you can physically reorganize the remaining files on the disk. To do this, use an optimizing program, such as **B.A.D.** ($49.95, ***Centaur***), **Dunlap Utilities** ($49.95, ***Progressive Peripherals***), or **Quarterback Tools** ($89.95, ***Central Coast/New Horizons***), to reorganize the files so as to eliminate the fragmentation that occurs with use.

The reason files become fragmented is that AmigaDOS tries to make the most efficient use of available disk space. If you delete a file that occupies 10 blocks on the disk and then save a file that needs 20 blocks, AmigaDOS will put half of the new file in the previous file's space and the other half elsewhere on the disk. This process occurs with every deletion and save, eventually fragmenting a disk so thoroughly that every time you open a window, it seems to take forever for the icons to appear.

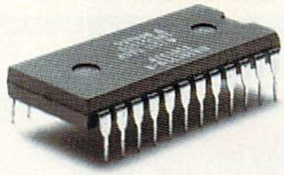
Optimizing the disk will rejoin all of the fragmented files and regroup all of the .info files so that AmigaDOS does not have to search the entire disk. After a period of use, you will have to run the optimizer program again, but each time you do, the results should be spectacular.

One other way to speed disk processes is with a cache utility such as **Facc II** ($34.95, ***ASDG***). Under normal circumstances, if you open a drawer or type Dir from the Shell, AmigaDOS will read the disk looking for files that belong to that directory and then display them. Unfortunately, the operating system promptly forgets what it just told you, so that if you type Dir again, the entire process is repeated.

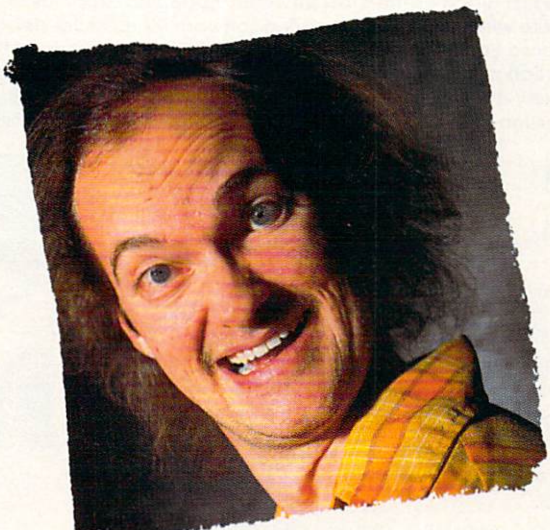
Using a cache program, the first Dir operation will take the same amount of time, but subsequent directory listings will be much faster. This type of program is most useful if you have extra memory and are performing such disk-intensive operations as working with a database. By setting aside a portion of memory as a specialized RAM disk and then intercepting floppy operations, a cache program can make some operations even faster than if you had a hard disk.

With the changes and procedures I've outlined, your Workbench disk will still boot and operate in a normal fashion—without your even having to make any changes to the standard startup-sequence. Using your new "working master" back-up copy, you will now have a Workbench disk with plenty of room for your favorite application—which should make using it a lot less frustrating. ■

Since 1987, Rob Hays has used Amigas for writing, game playing, business record-keeping, and desktop publishing. Before recently acquiring a hard disk, he performed all of these activities with a floppy-based system.



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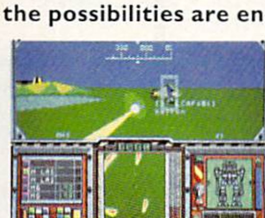


this one wants to rip your lungs out.

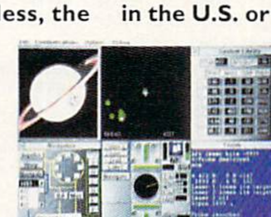
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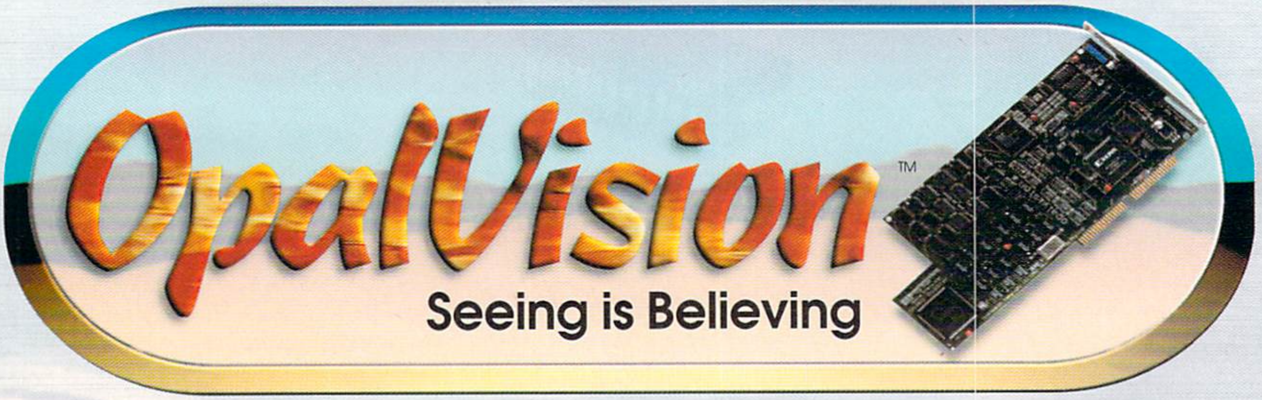
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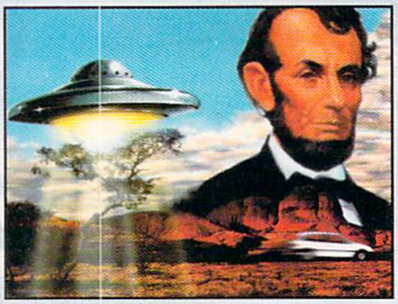
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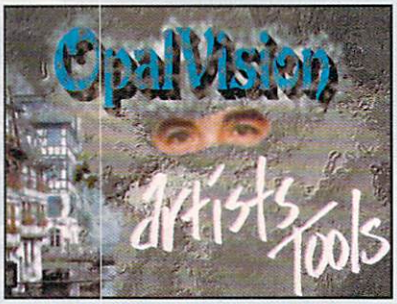
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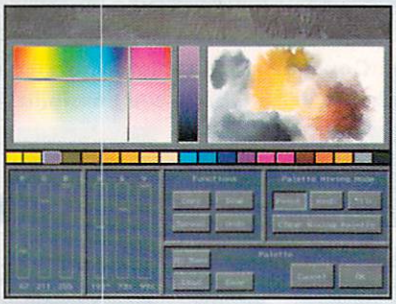
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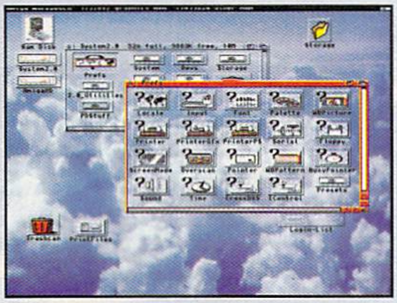


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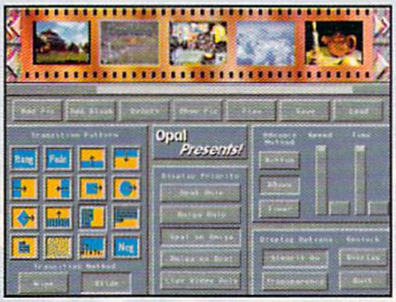
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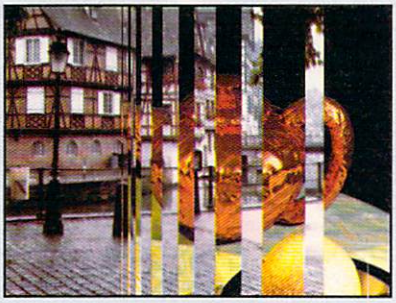
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Revolutionary "Roaster" chip provides unlimited digital video effects. Create your own effects or use the included library.

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• Display Amiga Graphics, OpalVision 24-Bit images and live video as rock-solid, non-interlaced, flicker-free images on any multi-scan or multi-sync monitor.
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• An external unit which plugs into the OpalVision Frame Grabber/Genlock for software-controlled switching between two video sources.
• Incorporates four video input signals each with its own color splitter. These four inputs can be assigned to A and B sources for switching in any combination.
• Perform cuts, dissolves, wipes and all the transitions made possible by the OpalVision Roaster Chip between two different sources.
• Each input includes both S-Video (S-VHS or Hi-8) and composite jacks. Output is provided in both S-Video and composite format.

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• Real-time processing and morphing of live video, OpalVision images or standard Amiga output. Take any live video signal. Flip it. Scale it. Wrap it on a sphere. Wave it like a flag. Do page turns to reveal a second source image. Provides an infinite variety of amazing, real-time Digital Video Effects.
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ACCENT ON GRAPHICS

Silicon Woodcuts

#43

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

I HAVE ALWAYS liked the look of woodcut prints—from the Japanese masters to Rockwell Kent. A design is carved into a wood block that is then inked and pressed to paper. The artist's knife strokes create shallow troughs in the wood that leave smooth, bold lines in the print. Any slip of the knife can irrevocably ruin part of the image.

One of the computer's strong points as an art medium is the freedom it gives an artist to correct such "irreversible" mistakes. This month's column explores methods through which the computer artist may explore the woodcut style while still enjoying the experimental freedom of the computer.

Simple Experiments

The methods I will explore are general enough so that they will work in any major paint, drawing, or publishing program, although I will use terminology specific to DeluxePaint (Electronic Arts), Professional Draw, and Professional Page (both Gold Disk).

For the simplest experiment, open DPaint to a high-resolution, two-color screen. Make one color black and the other white. Draw with thick black lines using the freehand-line tool. After the main elements of the drawing are laid in, use a white brush to go over those same lines, carving them up a bit. The goal is to produce interesting lines of varying thickness rather than the mechanical uniformity of strokes made with a standard brush. You will probably find that this technique lends itself to expressive strokes rather than deliberate draftsmanship. Here, the Amiga's two-button mouse comes into its own, allowing you to paint black with one button and white with the other.

The experiment with the paint program gives you a feel for the technique, but in a printed image, you can see a limitation of bitmapped graphics. The picture is a jagged mosaic of black-and-white rectangular dots. To address this deficiency, you can experiment with structured graphics in Pro Draw, Pro Page, PageStream (Soft-Logik), or any other structured-drawing or publishing program.

A structured drawing is not a fixed pattern of dots forming an image. Rather, it is a sophisticated description of the lines and forms that compose that image. From this description, the drawing can be reproduced in any size at the resolution of the display device. Sent to a printer, an image is made at the printer's resolution, typically much higher than the screen display of a paint program. For the computer woodcut experiments, this means that an artist can print images with the smooth curves and sharp points one associates with the knife strokes of a woodcut image.

Structured-drawing programs like Pro Draw offer the widest range of tools for artistic experimentation, but most desktop-publishing packages include all the basic drawing tools needed for a computer woodcut. The idea is essentially the same as in the painting software. Draw with black, then carve the lines with white. In Pro Draw's Attributes menu, set Line Weight to Custom 0.2 and the Line Joins to Round. Use the freehand-line tool, switching the line color back and forth from black to white.

Print the finished image to test your results. If you do not own a drawing program, try the freehand-line tools in your desktop-publishing software. A woodcut image is easy to create directly in PageStream or Pro Page as an embellishment to a document, or it can be cloned and used as a border. The woodcut style is excellent for designing unusual logos and business graphics.

Combining Techniques

Perhaps the most effective solution to creating a woodcut look with the computer combines the methods discussed above. You can paint the image as a high-resolution bitmap, enjoying the

Combining paint-program and structured-drawing techniques, you can create and print images exhibiting the crisp, boldly expressive style of traditional woodcuts.

freedom and speed of paint tools. You can then convert that painting to a structured graphic that your drawing or publishing software can print at the highest printer resolution available to you. The critical conversion from bit-mapped painting to structured drawing is accomplished with the Trace program that comes with Pro Draw 2.0.

The "Monument Valley" illustration accompanying this column was created using this combination process. To try a similar drawing, open DPaint to a 640x400 two-color screen. Use Filled Freehand and standard brushes to draw the cliffs. Make the distant rocks solid black, then rake them with a white brush made up of a row of single pixels. Save the image and open the Trace program.

Enter the image you just created as the Picture File. Enter an Output File name for the conversion and a Clip name for the actual structured object the program will create. Turn Fills on. Select a Fit of 2.0 for your first experiments (this determines how closely the trace follows the exact lines of the bitmap). If the fit is too close, actual pixels may be traced; if it is too loose, detail will be lost. Press the Trace button and sit back.

When the trace is finished, load the conversion into Pro Draw or Pro Page as a Clip. With the clip loaded in Pro Draw, you can print the image from the Output menu. The illustration here was output to an NEC Silentwriter laser printer as PostScript. The software will also do a remarkable job with nonPostScript or even dot-matrix printers. The conversion to a structured graphic has turned jagged pixel shapes into smooth strokes having the feel of a woodcut.

In this process of conversion, dozens or even hundreds of objects are created that collectively compose the image. Each object can contain dozens or hundreds of control points that define it. There is a maximum limit of 1500 points allowed in any individual object. If any object exceeds that complexity, the image may not print.



The desert scene in "Monument Valley" (above) was painted in DeluxePaint, converted to a structured graphic with Professional Draw's Trace program, and then output to a laser printer.

If you encounter this problem, the solution is to break up objects. To do this, choose Select All and then Split Compound Object from the Object menu. Use the Null Pointer to click on all the objects in the drawing until you come to one that looks as though it might exceed the point limit. Select the cutting tool from the lower-right portion of the screen, position the cross hair on a point near the center of the suspect object, and click the left button. This divides the object without altering it.

Continue this process with all objects that might exceed the limit. When finished, you can either output to a printer or group the objects and save them as a Clip. You can even save a PostScript file to disk for use on other platforms. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

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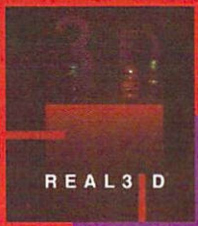
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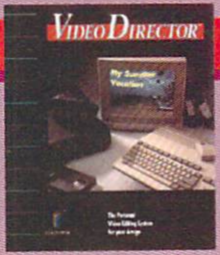
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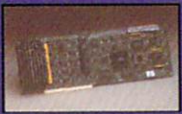
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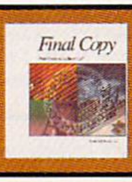
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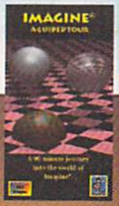
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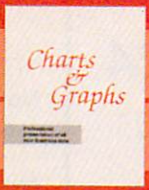
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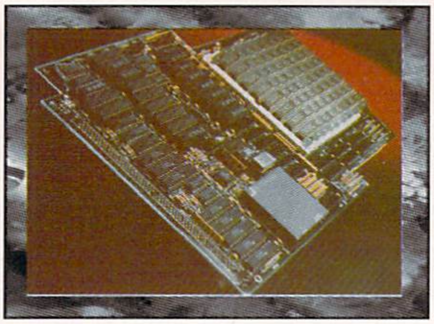
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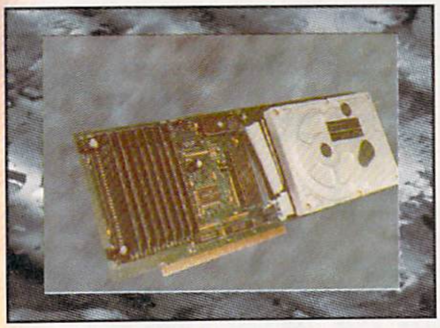
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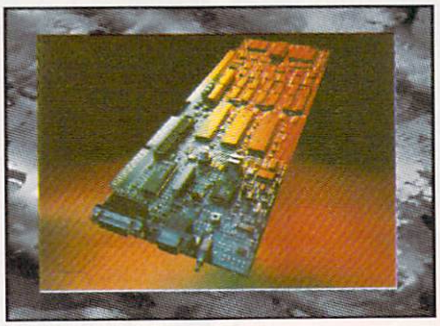
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From p. 18.

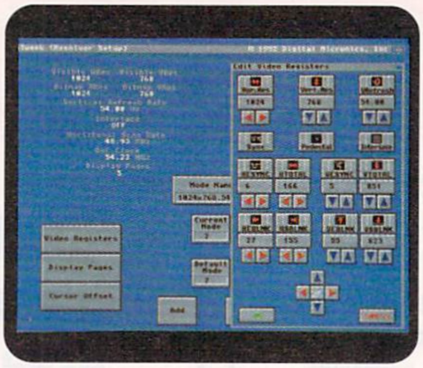
The next step is to configure the SAGE software for your particular Resolver board and monitor, using the set-up program, Tweek. Configuring is as simple as selecting the model that you purchased. The Resolver comes in three configurations: the A board, with two megabytes of video RAM, two megs of DRAM, and a maximum resolution of 1024×768 pixels in noninterlaced mode ($1295); the B board, with three megs of video RAM, two of DRAM, and a maximum resolution of 1280×1024 noninterlaced ($1749); and the C board, with five megs of video RAM, four of DRAM, and up to 2048×2048 interlaced resolution ($2195).

Configuring the system for your monitor is both more complicated and more interesting. The Resolver comes set up for six default resolution modes that most monitors can display, but you can modify any of these or create up to 32 new modes of your own. The basic process involves selecting the horizontal and vertical resolution, changing the vertical refresh rate so that the picture synchronizes correctly, and then using the positioning gadget to drag the test image into a centered position on your display.

You have complete control over all of the display registers and can instantly see the effect caused by changing a particular setting. This lets you achieve the maximum picture size that your monitor allows, not some "safe" size that is sure to work on all monitors. For example, the inexpensive multiscan monitor I use is not rated for 1024×768 noninterlaced, yet I can display that resolution by turning down the refresh rate to 54 Hz. If I want a 60-Hz refresh, I simply reduce the display size to, say, 1024×700. Once you save the mode descriptions to your configuration file, all applications that use the SAGE libraries can use your custom modes.

All of this hardware power is useless, however, without software support. Because the Amiga does not yet allow the use of graphics cards as Workbench displays, special provisions have to be made to run existing Amiga software on the Resolver board. One of these is a program called the Resolver Workbench, which continuously copies the Workbench display (including the mouse pointer) to the Resolver screen.

Under 2.0, for example, you can set your Workbench screen size to 1024×768 and run the Resolver Workbench on a noninterlaced 1024×768 screen. The Amiga display makes you scroll around this large Workbench, but on the Resolver screen, you can see everything at once, which allows you to run existing desktop-publishing programs on a screen



The Tweek program gives you full control over the Resolver board's programmable resolution modes.

large enough to show a whole page.

The Resolver Workbench program is not perfect, however. Because it must copy much information from the Amiga screen, it lags behind the Amiga display (menu bars come up a piece at a time), and it somewhat slows down the whole system. Also, an application that opens its own custom screen does not work well with the Resolver Workbench. A 320×200 DeluxePaint screen, for example, appears as a tiny display in the upper-left corner of a 1024×768 screen.

While I wouldn't employ it as my everyday display, the Resolver Workbench is fine for occasional use. It is a good example of the lengths to which DMI will go to support this board, and provides a taste of what we can expect from future Kickstart versions that support large Workbench displays on graphics cards.

For now, the best way to use the Resolver is with software designed with the board in mind. DMI includes one such program with the Resolver, its own DMI Paint program. Although the version we reviewed (1.3) has only a few basic tools, DMI continues to update and enhance this program. Also included is a utility that displays eight-bit or smaller IFF files.

Disciples

The Resolver is currently supported, however, by several programs from other software developers. ASDG's Art Department Professional and Black Belt's ImageMaster both output images in any Resolver display mode and support multiple buffers and multiple Resolver boards. Aegis' Presentation Master and Adspec Programming's Draw4DPro can also output high-resolution images directly to the Resolver display.

In all of these cases, however, the Resolver is used merely as a display device, not as an interactive screen on which you can select menus or gadgets. Moreover, most of these programs store their color information in 24-bit format and must take the time to convert it to eight-bit color before displaying it on the Resolver. DMI reports that SAGE versions of DynaCADD (Ditek), Professional Page 3.0 (Gold Disk), Imagine (Impulse), Caligari (Octree), 3D Professional 2.0 (Progressive Peripherals), and TV Paint (Tecsoft) are currently in the works.

Despite this support, the Resolver board has not yet realized its full potential. For example, DMI states that the board can display 2048 horizontal dots at NTSC or PAL scan rates, making it suitable for high-resolution video. (The board also provides a composite input that lets you sync to an external source.) The company does not, however, offer the proper type of encoder and software to make such an application a reality. Although the board can in some configurations support multiple buffers that could help to display high-resolution animations at good frame rates, there is so far no real software support for this kind of animation.

Considering, however, all of the work involved in developing support for large workstation-type displays on the Amiga, DMI has made real progress. Starting completely from scratch, the company developed the SAGE libraries, recruited other developers, and came up with such innovative solutions as the Resolver Workbench. More importantly, DMI has demonstrated a commitment to continually update the software and expand the usefulness of the display. Such efforts can only bring closer the day when large workstation-type displays are common on the Amiga.

—Sheldon Leemon

AmiLink CI

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External hardware, serial-port connection.
Installation: difficult.

Consumer video-editing system.

A scaled-down version of RGB's professional video editor, AmiLink CI controls Panasonic AG1960 SVHS consumer

decks and is available as a cuts-only system for $995 or as an A/B roll system for $1595, both versions having an optional Video Toaster control module ($150).

A Web of Cables

The first step in setting up the AmiLink CI editor is to attach one end of the serial interface cable to the Amiga's serial port through the software-protection dongle and the other to an eight-pin serial port on the supplied VuPort AG1960 control interface. The cuts-only VuPort controller has two VCR connectors, one for the recorder and one for the source. The A/B roll system comes with two VuPort controllers; the computer connects to the first controller's serial-in, and the single VCR-control port is hooked to the recorder. You then daisy chain from the first controller's serial-out to the second controller's serial-in. VuPort number 2 is equipped with two VCR control ports, one for each of the source machines.

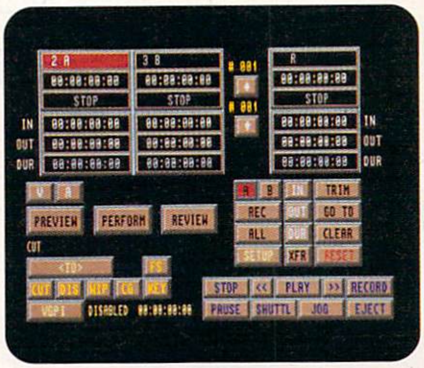
The video connections are more complicated, and you must supply the cables for the decks. The complexity increases as your configuration grows more advanced, with switchers and time-base correctors added to the loop.

The last hookup is audio. In a cuts-only system, simply connect the source audio-out to a mixer or directly to the recorder. An A/B roll system requires a mixer connected to the recorder, allowing more creative audio editing by enabling the source decks to be faded up or down.

The AmiLink software installs more quickly, as it boots to the edit interface. I asked many editors to look the system over, and their first impressions of the interface were not glowing. One even felt that it resembled a video game, lacking the slickness most clients look for. To put a more professional face on it, you can use an interlaced display and open the edit list in the screen's lower half.

Looks aside, the editing interface is genuinely functional, displaying the sources on the left and the recorder on the right. You can enter in and out points and durations by clicking a source or recorder input (In/Out/Dur) and typing the standard hour, minute, second, and frame number. The lower-left part of the display is used to select cuts, dissolves, and wipes from the various sources. The lower right is reserved for the control of the source machines and the recorder. The one problem here is that it is easy to click rewind instead of shuttle, which causes problems with edit points and lowers the accuracy of the performed edit.

Accessible from the main interface, AmiLink's Set-up menu lets you select how AmiLink controls the VCRs, display, Toaster, and edit list. One function you should immediately set is End Status, which tells AmiLink what to do after an edit.



AmiLink CI's main editing screen.

A second important menu is the Electronic Patch Bay (EPB), which tells AmiLink which video sources are connected to which inputs of the Toaster. If your video deck is consistently fast or slow by a number of frames, you can even specify a frame offset to compensate.

Cutting and Splicing

I tested an A/B roll AmiLink with Toaster-control software. Initially, it took a while to get used to the editing. Instead of twisting knobs, you use the mouse to control the video decks in both shuttle and jog modes. The jog mode is the most difficult to master, because you constantly have to pick up and set down the mouse to move through the video frames.

In the CI version of AmiLink, time code is not available. Instead, the editor reads the tape location of each video deck and displays the number in a time-code-like manner. The problem with this type of editing is that the accuracy of the edits decreases if the video decks are stopped or if the tape is pulled off the play head. I found that stopping the decks in the test sessions caused the edits to be off by minus three to five frames. One way to keep locations accurate is by using the shuttle or the jog VCR controls instead of the rewind or fast-forward buttons.

Editing dissolves, keys, and Toaster effects with AmiLink is a simple matter of setting up an A/B roll edit. For example, to dissolve from source A to source B, click the DIS button to bring up a window representing the Toaster's Preview, Program, and Overlay bus. Select the inputs and dissolve speed, and from the main screen choose the source-in points, an out point (the trigger for AmiLink to dissolve from source A to B) or a duration, and the recorder-in point.

For match edits, press the Tab key to establish the correct in and out points to

Continued on p. 58.

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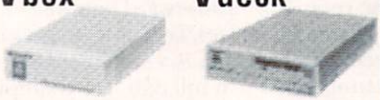


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Circle 10 on Reader Service card.

From p. 55.
match the previous edit. Select the effect button and the appropriate inputs for each input bus. The new edit should have the correct in locations for source B, but you need a new out or duration time. Next, set the points for source A. The match edit is ready to roll with a touch of the preview or perform buttons. A more accurate method is to choose an auto edit of a list of match edits. To create the list, simply follow the same procedure, except preview the edits. Advance to the next event and prepare the match edit. Turn on the auto edit with the F1 key. AmiLink starts at the top of the edit decision list (EDL) and performs each edit.

The slickest feature of AmiLink is the optional Video Toaster control. Editing with the Toaster is as simple as selecting an effect and the sources it should manipulate. The lower left of AmiLink's interface houses the Toaster programming buttons: WIP, CG, KEY, and FS. The WIP button lets you select the sources, the effect grid letter, the effect number, and the transition speed. To select an effect, click the VT button to enter the Toaster's switcher, locate the correct effect, return to AmiLink, click WIP, and enter the effect information. The FS button allows AmiLink to load either of the Toaster's frame stores for use during an edit.

Room to Excel or Expand

AmiLink is a reasonably priced system that can easily be built over a period of time, starting with a cuts-only configuration and advancing to the full A/B roll system. The biggest drawback of the system is the software-protection dongle; it sticks out of the serial port over four inches, and if you lose it, RGB says it will not issue another. Otherwise, AmiLink is a good step forward in the editing realm.

—Mark Swain

REXX PLUS Compiler, v. 1.2

***Dineen Edwards Group,* $150**

Hard-drive installable.
Not copy protected.
2.0 compatible.
Accelerator compatible.
Minimum system: 512K RAM.
Recommended system: 1MB RAM.

Improves execution speed of ARexx scripts.

ARexx is now an integral part of the Amiga operating environment, especially since the introduction of the 2.0 operating system. Most major commercial applications include ARexx support, and as a consequence, a lot of ARexx programs are being written to integrate the applications and extend their capabilities. Not all these programs are short macro sequences, however, which shows one of ARexx's deficiencies: ARexx programs can be (relatively) slow. This is where the REXX PLUS Compiler can help.

REXX is traditionally an interpreted language: Each time you run a program, the interpreter reads and tokenizes the source before executing it. The same is true of ARexx. But if you are willing to accept a few restrictions, a compiler can process ARexx to produce an executable that runs several times faster than the program's interpreted version. The restrictions, which shouldn't cause the average ARexx programmer any grief, are that you cannot use some of the tracing modes or the INTERPRET statement.

After the straightforward installation procedure, REXX PLUS operates seamlessly within the ARexx environment, so you can mix and match interpreted and compiled programs. You can run the compiler from either the Shell or an Intuition-based interface. At its simplest, compiling a program involves specifying the input and output paths and letting REXX PLUS go to it.

The compiler creates an executable that you can run in the usual manner from a CLI or an icon. With the REXX PLUS environment running, you can also invoke compiled ARexx programs from within interpreted programs (and vice-versa) or by using the usual RX command. Compiled programs are completely reentrant, meaning that you can make them resident for even faster execution.

Not only does the compiler support the full language, but it also knows about ARexx function hosts and libraries. Function calls to external libraries and hosts, which can be fairly time-consuming because ARexx searches a dynamic list, can be resolved at compile-time for significant speed improvements. You can even add your own built-in functions to REXX PLUS programs, and the compiled programs support the Rexx Variable Interface (RVI).

The Dineen Edwards Group was very careful to support all the features of the ARexx interpreter. The developers even added a few extra debugging capabilities not found in the ARexx interpreter, including the generation of variable cross references and the ability to find many errors that the interpreter would only encounter at run-time. For additional help, the package offers a disk of popular REXX-related libraries and utilities, as well as a 280-page manual that includes a reference guide to the REXX language.

How much faster will a compiled program execute than an interpreted one? Dineen Edwards claims programs will run 2 to 15 times faster, depending upon what the program does and which REXX PLUS options you are using to compile it. Testing confirmed both Dineen Edwards' prediction and the fact that computation-intensive programs benefit the most from compiling.

Of course, the speed increase has its costs. The first is space: The smallest compiled REXX program (say "hello") is about 10K. The average size for compiled programs seems to be about 20K, which really isn't all that bad. Second, because compiled programs use a proprietary shared library when running, you cannot distribute programs compiled with REXX PLUS without a license from the Dineen Edwards Group.

In summary, the REXX PLUS Compiler is a well-designed utility that does its utmost to support the complete ARexx environment in a transparent fashion. The price is reasonable, and the program is quite useful if you're heavily into ARexx programming.

—Eric Giguere

Quarterback 5.0

***Central Coast Software,* $75**

Hard-drive installable.
Not copy protected.
2.0 compatible.
Accelerator compatible.
Minimum system: 512K, one floppy.
Recommended system: 512K, hard drive, two floppies or a removable-media drive.

File backup for large or small hard drives.

An Amiga institution just got better. Quarterback 5.0 is as safe and sturdy as its predecessors, but sports a new look. In fact, it seems like an entirely new program.

Qback lets you load a directory or drive for backup, either by navigating through valid devices listed in the program's window or by dragging a drawer or disk icon onto the AppIcon on Workbench 2.0. In addition to physical devices, logical assigns may also be displayed. Moreover, version 5.0 has loads of new features. If your drive contains sensitive data, for example, you can specify a custom password that is then ►

AMW 9-92

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required for accessing the backups.

Quarterback also sports five levels of data compression that allow you to find the right compromise between backup speed and file size. The program isn't very smart about compression rates, however; if you are already using a program such as Powerpacker on your hard disk, Qback does not abort the crunch, even though its compression scheme winds up making files larger. Qback does filter out files with certain extensions, however. Watch the compression rates and judge the efficiency for yourself.

In 5.0, Qback's file catalog documenting backups is even configurable. You can specify the format of such items as date and time and choose whether the catalog lists such details as file size and the status of AmigaDOS flags. In addition, the program's main window now displays errors encountered, compression efficiency, backup speed, and other statistics. A session log writes this data to disk or the printer.

One of the nicest changes to Qback is the new procedure for including and excluding files in the backup/restore. Files that are included in the backup are now called tagged files, and a group of intuitive menu items and a tag-filter requester make it a piece of cake to precisely configure a backup or restore. The requester allows you to exclude or include files based on factors such as the status of the archive bit (have they been backed up since their last modification?), file date (before or after), and filename-matching criteria. You can even mix and match filters so as to tag files with archive bits set and files created after March 31, 1992.

Thanks to New Horizon's acquisition of Central Coast Software, Quarterback now shares many of the same interface stylings as ProWrite 3.2. At your disposal is a complete macro language, courtesy of ARexx, and you are able to name those macros in a logical manner, rather than simply Macro_1. A ProWrite-like printer set-up requester optimizes the printed quality of session logs and catalogs. You can even use the ASL file requester, although not all public-domain replacements work (Stefan Stuntz's excellent Magic File Requester, for example).

Throw in Qback's nicely polished interface, support for SCSI devices and streaming-tape drives, and you'll have a hard time finding a better program to take care of all the precious data you've been storing. Quarterback 5.0 is a program you can trust, and you'll enjoy using it for what must be the most mundane task computer owners have.

—Dave Johnson

MegaMix Master

Rombo, $69.95

Hard-drive installable.
Not copy protected.
2.0 compatible.
Accelerator compatible; sampling problems on some A3000s.
Parallel-port connection for sampler.
Installation: Easy.
Minimum system: 512K RAM, speakers, sound source.
Recommended system: 1+MB RAM, speakers, sound source.

Basic to intermediate sampling and editing.

AMAS 2

Microdeal, $199.95

Hard-drive Installable.
Not copy protected.
2.0 compatible.
Accelerator compatible; sampling problems on some A3000s.
Parallel- and serial-port connection for sampler.
Installation: Easy.
Minimum system: 512K RAM, speakers, sound source.
Recommended system: 1+MB RAM, speakers, sound source.

All levels of sampling and editing.

Stereo Master

Microdeal, $89.95

Hard-drive installable.
Not copy protected.
2.0 compatible.
Accelerator compatible; sampling problems on some A3000s.
Parallel-port connection for sampler.
Installation: Easy.
Minimum system: 512K RAM, speakers, sound source.
Recommended system: 1+MB RAM, speakers, sound source.

All levels of sampling and editing.

Fortunately, many European products are now finding their way into the North American market. Most recently, three audio samplers invaded these shores: MegaMix Master, AMAS 2, and Stereo Master.

MegaMix Master

The cover photo on the MegaMix Master box of kids looking as though they were junior high school students is deceptive, for it is not an entry-level sampler and sound-editor package aimed at young people strictly for fun. It can do some serious stuff, too.

Instructions on hooking up the sampler hardware are skimpy, but installation is simple (pop it onto the parallel port). Connection to your sound source is via a mini-plug. The software supports the basic sound-editing tools and features, all of which you access through on-screen buttons. The Realtime menu lets you audition your sound source with a variety of effects, including echo, stereo echo, and vibrato. Once a sample has been recorded, you can filter it, fade it in and out, increase or decrease its volume, and run it through a phaser, among other types of signal processing.

The program even helps you find the best spots for creating loops in a sample. Unfortunately, not all the effects available in the Realtime menu are in the Remix menu. While some seem more useful than others, all effects worked as promised. MegaMix Master does not, however, provide a way to audition or undo an effect once it's applied. You must reload your sample and start over.

The manual mentions a MIDI four-track recording feature, but the tutorial is a bit sketchy. Keypresses triggered samples twice—once at the original pitch and speed, and once at twice the pitch and speed. The manual never spells out how to operate the key-assign feature.

Useful for constructing a conversation from separate vocal samples, the Song Sequencer lets you link samples together into one longer piece. Loading an IFF sound file from disk appends it to the one currently in memory, instead of replacing it. Unless you want to merge the two, you must delete the current sample before loading a new one.

There are many good things in MegaMix Master. The icons are colorful and intuitive, the audio quality is first-rate, the hardware is compact and easily installed, and the price is right. Even so, I hesitate to wholeheartedly recommend MegaMix Master to its seemingly intended audience, as it requires a certain amount of patience and savvy to take full advantage of its many features.

If you have had a great deal of experience with sampling, you should be able to feel your way through most of the package. However, programs designed for novice computer users should be more clear, well defined, and easily understood than is MegaMix Master.

AMAS 2 and Stereo Master

Both from Microdeal, Stereo Master and AMAS 2 share many features, including

Continued on p. 64.

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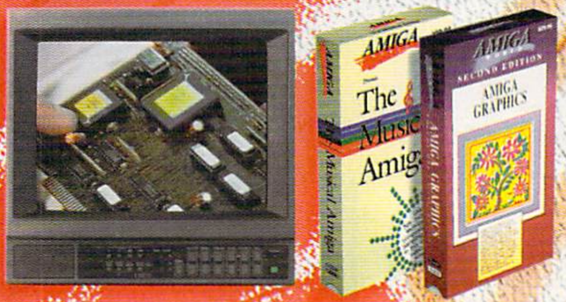
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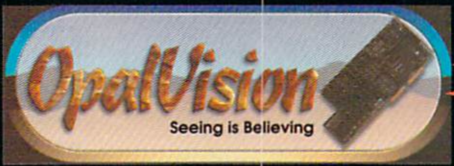
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- 14" monitor

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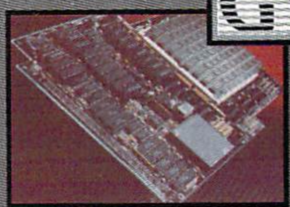
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From p. 60.
the interface and most technical specifications. Both programs provide functions similar to those of MegaMix Master, adding a wide selection of special effects and some more unusual features. For example, you can display your sound source via the traditional twin oscilloscopes or the less common spectrum analyzer and display your sample as a Fast Fourier graph.

Stereo Master is the economy version, coming with a very small hardware interface that sports a stereo mini jack and a stereo mini-to-mini cable. The biggest drawback to Stereo Master is its inability to process samples in memory through the special effects. You can only process incoming signals.

AMAS 2 is the more comprehensive package. The hardware interface provides two stereo line-level inputs, a mic-level input (and a microphone), as well as MIDI In, Out, and Thru. While you might think the inclusion of MIDI ports means you can sample directly from your MIDI keyboard, this is not the case. The ports let you control the sequencer functions from a MIDI device, in addition to the Amiga keyboard.

AMAS 2's software allows you to adjust the input's volume level, swap back and forth between your main sample and an edit buffer, play samples in the buffer through the special effects for previewing, and take advantage of faster 680x0 processors. You can test any of the numerous special effects without altering your sample, but once you commit, that's it. As with MegaMix, there's no undo function. The screens are well laid out, and you'll find many icon functions duplicated in pull-down menus. The sound quality is quite good.

AMAS 2 can save your samples as executable files. Simply click on the icon to play the sample. You can even make self-running demos for customizing your startup-sequence or running behind video presentations.

The interface and manual are big pluses for both AMAS 2 and Stereo Master. They both seem designed to address problems and situations that would come up in an average sampling session. The learning curve is smooth, and getting around both programs is easy and logical.

Tops in the Trio

All of the tested packages offer a slightly different presentation than you may be accustomed to. For one thing, the reliance on graphic images rather than text boxes seems to be a European characteristic. File sizes are comparable, as is



Among other methods, AMAS 2 displays your sample via twin oscilloscopes.

sound quality. MegaMix Master is the only one that possesses parallel-port pass through, so you'll be swapping cables to run your printer with AMAS 2 and Stereo Master.

For A3000 owners, there is an unfortunate aspect to all three of these packages. While they do work well on A500s and A2000s, these samplers generated quite unacceptable levels of background noise when connected to my A3000. One technical representative suggested that the problem was caused by the electrical components that are used in some A3000s, and that not all A3000s exhibit the distortion.

So which should you choose? AMAS 2 has the most features. With edit buffers, effects processing in real time and on previously recorded samples, RCA-type jacks, remote control from MIDI keyboards, and a microphone, it offers the most power and flexibility for the heftiest price tag. Outside of the cost, the biggest drawback is the size of the interface and the lack of pass through.

If you're on a restricted budget, and if your desk space is at a premium, you shouldn't overlook MegaMix Master. While it doesn't have as many effects as AMAS 2 or Stereo Master, it does perform the basic sampling, editing, and effects-processing functions well; it offers the smallest hardware of the lot; and it is the only one that provides you with a parallel-port pass through. In my opinion, the biggest drawback to MegaMix Master is the skimpy manual. If I could get the Microdeal manual writers to produce documentation for MegaMix Master, I'd feel even better about recommending it.

If you can do without processing already recorded samples and MIDI control, consider Stereo Master. It has a very small hardware footprint and most of the features of AMAS 2, at less than half the price.

—Rick Manasa

MaxiPlan4

***The Disc Company,* $159.95**

Hard-drive installable.
Not copy protected.
2.0 compatible.
Accelerator compatible.
Minimum system: 1MB RAM.
Recommended system: 1MB RAM, hard drive.

Intermediate spreadsheet with graphing.

Professional Calc 1.4

***Gold Disk,* $295**

Hard-drive installable.
Not copy protected.
2.0 compatible.
Accelerator compatible.
Minimum system: 1MB RAM.
Recommended system: 1MB RAM, hard drive.

Intermediate spreadsheet with graphing.

Since the Amiga's debut, users have waited for a professional-level spreadsheet competitive with PC and Mac products. Two hopefuls bidding for the title and your dollars are MaxiPlan4 and Professional Calc 1.4.

Compatible with its many previous versions, MaxiPlan4 lets you build worksheets with up to 512 columns and 32,760 rows, have up to three of them open simultaneously (although the program crashed several times when I tried this), and output to Preferences printers. In all, over 70 functions are available.

A renovated Advantage, Professional Calc 1.4 flaunts a sharp AmigaDOS 2.0 look for its worksheets of up to 65,000 columns and rows. You can choose from over 125 functions, have an unlimited number of worksheets on screen, and import MaxiPlan files. Fonts, style tags, and PostScript and sideways printing are supported, as well. Both programs offer a maximum of 16 screen colors, customized charts, Lotus file importing and exporting, database functions, collapsible outlines, and cell naming.

Beyond Numbers

Good spreadsheet design dictates working with named cells rather than locations, but neither program's naming function works without a hitch. Pro Calc's is absolute; when you move your data you must rename the new cell. Also handling ranges, MaxiPlan's naming func- ►

tion usually works, but it occasionally failed to relocate the name when I moved cell data. In addition, the programs don't provide much cell information beyond displaying cell data in the editing bar. Pro Calc does show your current style tag, but neither program displays the column width until you attempt to adjust it.

Both programs offer multiple options for formatting the numbers within the cells. MaxiPlan cannot display negative numbers with parentheses, but it has three date formats, whereas Pro Calc gives you only two. MaxiPlan accurately displays underlining on screen, but when you print, the entire cell is underlined rather than just the cell data. Pro Calc's underlining worked properly.

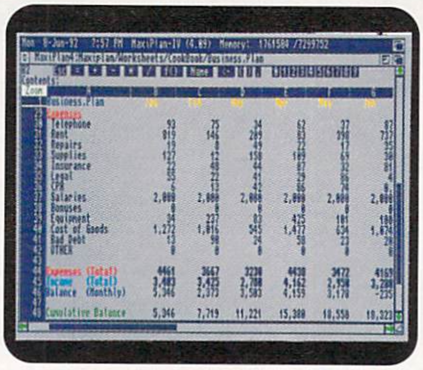
In coloring your cell data, MaxiPlan's implementation is fine and Pro Calc's is quirky. In calculating, Pro Calc uses the value of the color to be displayed. You always get the right color, but to get the correct numerical result, you must multiply the color result by zero. And don't plan on stunning color output: Pro Calc prints in black-and-white only (although version 1.05 promises color for graphs), and the colors MaxiPlan sent to the printer were not those I set on the screen.

Popular auditing features include checking for circular references, displaying cells as formulas, showing precedent and dependent cells, and cell mapping. MaxiPlan alerts you to circular references in an error message, but Pro Calc warns you of such mistakes only in its manual. Both programs let you display cells as formulas, but neither helps you check precedent and dependent values nor offers cell mapping.

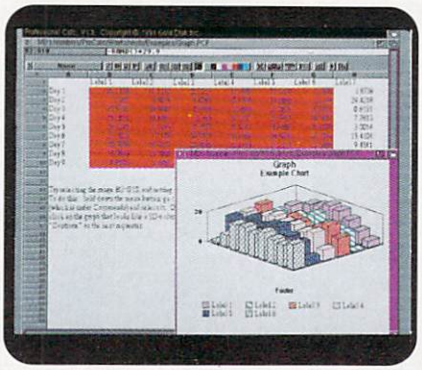
Linking worksheets is vital in consolidating information. MaxiPlan's REFER() function works flawlessly, but recognizes only files on disk. Pro Calc's LCELL() function requires worksheets to be in memory, and its LINKDISK() function looks for a worksheet on disk. I could get neither one to work, but Gold Disk promises version 1.05 will correct the problem.

I had better luck with the programs' database functions. Both spreadsheets let you find and extract data, although neither lets you define the maximum size of your output range. MaxiPlan also offers a unique DataView operation that lets you look at a data range in a comfortable display mode.

Both of these programs provide a fill-right and fill-down command, but no simple data fill. Outside of a simple sort, sorting in MaxiPlan is cumbersome, because everything must be defined by labelled database range names and sort criteria. At least MaxiPlan offers a choice



MaxiPlan4 displays spreadsheets in up to 16 colors.



ProfessionalCalc 1.04 lets you easily customize charts.

between ascending or descending sorts; Pro Calc unfortunately performs only ascending ones!

Bells, Whistles, and Alarms

You can develop customized interfaces with both programs. Both have a keystroke and mouse recorder, but MaxiPlan's extensive macro programming language overshadows ProCalc's ARexx support. MaxiPlan does also support ARexx, but, unlike ProCalc, provides only a one-page explanation and no examples.

Both programs support chart making. Pro Calc's intuitive interface lets you easily customize your charts, but unfortunately I found no way to name and save chart definitions with a worksheet except by creating a macro. You can save the chart if it is displayed while you're saving the worksheet, but close the chart's window, and you lose its definition.

In MaxiPlan, chart-legend names with more than nine characters are truncated at the screen edge; legend lists exceeding the screen height suffer the same fate on-screen and in print. MaxiPlan does, however, offer Word and Gantt charts, both of which Pro Calc lacks.

Configuration files are missing from both packages, as is the ability to define a default data directory or disk. With more Tool Types, Pro Calc does surpass MaxiPlan a little on the configuration front, but it isn't enough. MaxiPlan assumes all your files are in a predefined directory called Worksheets, and it can't save files without icons, whereas Pro Calc can.

MaxiPlan uses the number keypad as numbers only, but Pro Calc lets you toggle the keypad for either numbers or screen movement. Unfortunately, there's no permanent reminder of which mode you're in. Another keyboard curiosity is that both programs ignore the left Alt-Amiga key combination, which simulates the left mouse button.

Survival in the spreadsheet world requires importing and exporting Lotus files. Both spreadsheets claim these capabilities, yet both had trouble importing a simple vertical look-up table. Both can read Lotus macro commands, though neither can execute them.

Pro Calc fared no better at importing MaxiPlan files. ROUND() and SUM() functions were garbled, cell names were lost, several labels were treated as numbers, and no formatting was maintained; in addition, my system froze up on one try.

Neither program is long on providing help. MaxiPlan has a built-in calculator and a simple worksheet status screen (which doesn't inform you of worksheet errors). Pro Calc lacks both. Neither program has an undo operation. MaxiPlan's worksheet examples are useful, but most of Pro Calc's are little more than data-entry templates. Both manuals are small and badly in need of more information and concrete examples. MaxiPlan provides limited on-line help (even using the Help key), but Pro Calc is devoid of any such assistance.

Bottom Line

For more than six long years, Amiga users have waited for a powerful and capable spreadsheet. Sadly, the wait must continue, since Pro Calc and MaxiPlan are both lacking in reliability and features.

Each product has some good attributes. MaxiPlan has a strong macro language, and some of its functions are more intuitive than Pro Calc's, whereas Pro Calc's PostScript and sideways output, style tags, and chart-customizing features are blessings. If you could combine the best aspects of both, you'd have a good spreadsheet. Add the missing features, and you'd have a better one.

As it stands, either program may serve you if you don't need a sophisticated spreadsheet, although you might want to wait a revision or two. If, however, you're a business person needing quality, I regretfully suggest you spend your money on Lotus, Excel, or Quattro.

—Daryell Sipper ■

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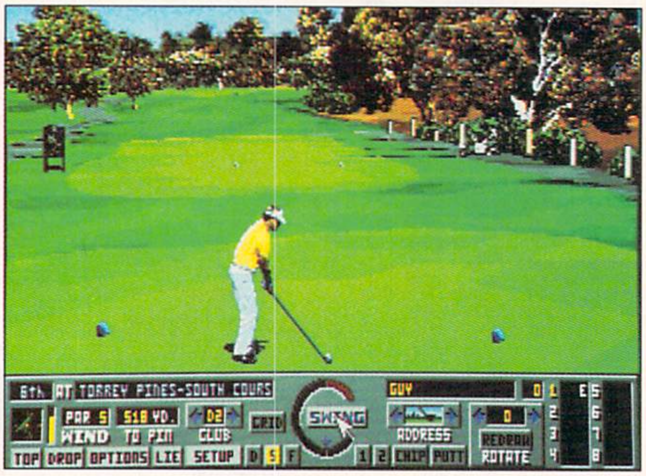
By Rob Hays

A DOUBLE RARITY among Amiga games, **Links** (*Access Software*, $59.95) was rewritten for the Amiga, not simply ported from the MS-DOS version, and it has a 4096-color HAM-mode display. As a result, this golf game looks substantially better on the Amiga than on a VGA-mode PC.

Links has three levels of difficulty. At the easiest, which is suitable for young players, your ball is unaffected by wind gusts, the computerized caddie selects the proper club, and swing timing is not critical. At the Pro level, however, you choose your own club for each shot, timing is extremely important, and you'll need to keep an eye on the wind indicators to adjust your shot.

Up to eight players can play a round, and all scores are displayed for comparison. Options abound, covering levels of graphic detail, sound effects (chirping birds, rustling leaves, murmured words of encouragement), and player capabilities. A driving range and putting green are also included for practice. If you're an avid golfer, you can even alter the simulation to reflect your real swing, stance, and so on.

The greens fees are rather steep for this course; a hard disk and one megabyte of memory are required. (With three megs of RAM, however, you can install Links on the RAM disk.) I also recommend the use of a 14-MHz or faster processor. At the default graphics levels, redrawing the screen takes approximately 30 seconds to one minute on a standard A500. A 25-MHz A3000 cuts this to about ten seconds. If you're a golf novice like me, use the delay to consult the enclosed chart of ►



No matter what the weather, Links puts you on the greens.

CRIB NOTES By Peter Olafson

This time, we'll get into Out of This World (*Interplay*, $59.95), which has been rapidly catching up to Shadow of the Beast II (Psygnosis, $59.99) as my most-asked-about game. Hey kids, buy something *new*!

The first level is actually pretty tough. The particular brand of seaweed at the bottom of the pool is bad for your health, so you'll want to get out of it as fast as possible and quickly head right (the seaweed is also persistent), where you'll encounter two screens full of poisonous slugs. Squish 'em or hop over 'em. (Hopping takes less time than squishing and is good practice for what you're about to endure.)

On the third screen, however, the creature who's been watching you from the backdrop—sort of a panther on steroids—is suddenly right in your face and you'll have no choice but to run left, over the slugs, until you reach a precipice. Jump for the vine, ride it back to the right when it breaks—it's just enough of a head start—and hoof it past the slugs yet another time. You'll find someone waiting for you, and he'll handle the panther.

Unfortunately, he also handles you, and you'll wake up on the next level (code: HICI) in a cage. There's really not much you can do here except swing the cage back and forth until it falls on the guard. (You may be able to extend this sequence by not swinging the cage when the guard is looking, but he *always* eventually fires his gun to summon help, so don't think there's a trick here.)

You'll make a pal of your cellmate, and he'll serve you well. Pick up the mashed guard's gun, and then head right. Mow down the next guard as soon as you see your friend retreat, then continue two screens right, put up shields to your left while your new buddy plays with the door controls, and let the other guards have at you. (You can shoot it out with them and win, but it's risky.) Then head right to the elevator shaft.

Do go to the top level once—not because you need to, but because it's gorgeous—and then go all the way to the bottom. Notice the power line running up the far wall. It controls the doors on the next level up, and if you disable it, you'll trap the guard there long enough to escape. Now, up one level, blast your way through the door and head down, left, and up again. And be quick about it, because the guard you've trapped will blast his way out. When a guard approaches, head down the shaft. Your pal will be taken prisoner, but don't worry; that's supposed to happen.

This is sort of a mini-level (code: FLLD), the main idea being to avoid falling too far. There's no way to get through except by experimentation, so, at the risk of sounding like a confused drill sergeant: left, right, right, left, right.

The next level (code: LIBC) offers something of a respite. Your gun is probably pooped from all this blasting and shielding, so before you do anything else, head left into the recharging chamber for some more juice. Blast your way through the doors to your right, recharge your gun again, and, two screens to the right, blow away the guard. At the edge of the cliff, jump. You can't make the top level (though you can visit it a bit later—to no useful pur- ►

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golf club performance to select your club for the next shot.

Access has done a good job, even including toll-free numbers for registration and help. While Torrey Pines is the only course available currently, Access promises the release of additional courses every two months. If golf is your game, Links should be on your hard disk.

WORLD CIRCUIT

By Peter Olafson

WORLD CIRCUIT (***MICROPROSE***, $59.95) isn't merely good. It's spectacular. This Formula One production number easily takes the checkered flag in the competition among car-racing games.

This Amiga-first game places you in Lotus Land at the start of the 16-race Grand Prix season. You'll join one of 18 racing teams and fine-tune and pilot one of these wheeled rockets through the 200-mph straights, tight hairpins, and gear-grinding chicanes of cityscapes like Phoenix and Monaco, as well as Brazil's bosky Interlagos circuit.

No bland scrolling backgrounds here; the scenery in World Circuit is a deep and constant presence. Big, filled-polygon buildings, trees, cranes, and grandstands loom up beside the road and zip by with speed and smoothness not to be believed—even on an unaccelerated A500. (The game positively flies on the A3000.) This is not some drive-by-night game world. It is pleasantly and realistically full of detail—the sort of game that makes you feel you could get out of the car, hop over the guardrail, and walk around in it if you wanted to.

You won't want to. The track is where the lion's share of the action is. The opponents are aggressive, the qualifying is rigorous, and practice is necessary. The race itself will make you sweat as though you were wearing a fire-retardant cowl in July.

World Circuit is just easy enough to get its hooks into you, and once they're in, they're in to stay. Success at the higher levels of realism comes only with hard work—the car will initially seem almost uncontrollable once you toggle off the many "help" options—but it's an enormous amount of fun.

Most racing games are a few notches removed from reality when it comes to off-track goings-on—if they bother with off-track goings-on at all. World Circuit bothers with them in splendid fashion. If you have a race-ending accident, you'll be seen pushing your car to the side of the track. If there's a flag on the play, you'll see an official leaning over the barricade waving it, and the color of the flag will mean something. And the pit crew isn't some abstract concept. They appear right in front of you when you pull into the pit area (as do the pit crews for all the other cars), and getting in and out fast is as critical as in real life.

It's also a beautiful game—a variety of stunning graphic screens are used as backdrops—and the on-screen menus are a joy. The four disks install effortlessly on a hard drive. As for options, nothing seems to have been overlooked; they are useful and well thought-out, permitting you to learn the game on the track rather than from a book. (One of the nicest is the option to place a dotted white guideline down the track to highlight the optimal path.) When it comes time to refer to the manual, you'll find it's the usual great MicroProse job.

For my money, this is simply the best racing simulation out there—not just on the Amiga, but on any home computer. Gentlemen, start your processors—and make sure World Circuit is plugged in first.

JOHN MADDEN FOOTBALL

By Joe Dicara

FORMERLY A TOUGH player, John Madden represents the true grit of football. So it comes as quite a surprise that a computer game for which he has partial design credit contains as many weaknesses as **John Madden Football** (***Electronic Arts***, $49.95). Don't misunderstand me. JMF *is* a remarkable game—remarkable, but flawed.

The most complete football simulation for the Amiga, this game has all the right stuff—smooth player animation (even on unaccelerated machines), crisp sound samples, excellent stereo sound tracks, fast, seamless scene transitions, on-side kicks, audible calls for both offense and defense, extensive

Continued on p. 76.

CRIB NOTES

pose), but you can land on the one below it, where you must shoot your way through the rock wall to the right.

The large cave system you've reached (code: CCAL) offers lots of opportunities for exploring and experimentation, but don't be too all-fired adventurous, as you need to do many of these things in a particular order to escape.

For now, just head down and to the right—don't worry about how far you're falling—and you'll eventually find the cave floor and some Prince of Persia-ish spikes, which you can easily jump over. Going right again, however, puts you in a rocky situation; one wrong step and you'll be a paint job on a fallen boulder, so time your moves precisely. You should be able to complete the first screen simply by leaping repeatedly. On the second, I used the passage of a large boulder falling on the left side of the screen and a smaller one falling just to its right to trigger my crossing.

Time to meet some new friends. One hangs from the ceiling, and the other lives in the ground. Both have many sharp teeth, which you will experience up close and personal unless you are quick enough to run past the first and accurate enough to leap over the second. (Some of the tentacle creatures hang low enough so that you can blast them out of this world with a full charge from your pistol; shooting them merely makes them withdraw temporarily.) Continue right, jumping over the ravine, until you come to a wall. Blast your way through it and find...an empty room.

I went through all that to find a flippin' empty room? Well then, you'll like this even better: Now you have to go back through it in the other direction. (Mercifully, by blowing through the wall, you've earned another password—EDIL.) When you come to the incline leading up and to the left, follow it. You'll have trouble getting past the tentacle creature, so fill his stomach first by luring over (shooting) the flying red thing that you may have spotted on your trip to the right. Now you should be able to climb across the stalactites to the left. (Be sure you don't grab them too far down; they're slippery little devils.)

If all went well—you're reading this, so it probably didn't—you'll wind up atop the huge triangle-shaped rock you visited on your way down here. (Code: FADK.) There's nowhere to go from here except back where you just came from—er, no thanks!—so drop off the left side and blow out the rock's underpinnings; the triangle is an "up" ramp to the next level. Once there, head right, jumping the pits, until you come to a dead end under a pool of water. If you've run into the impassable spillway in your travels, this should give you some ideas.

You're going to pull the plug...but carefully, carefully. Position yourself as far to the left side of the screen as possible—leaving and then returning if necessary—and then give the right wall the benefit of the full power of your pistol. Don't stick around to watch the results, as the flood will follow you left quickly enough. You'll need to run as fast as possible, jumping all the pits, until you can't go any farther. Good luck!

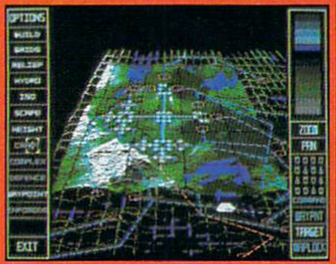
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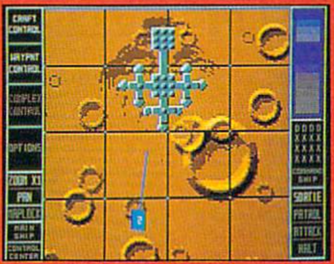


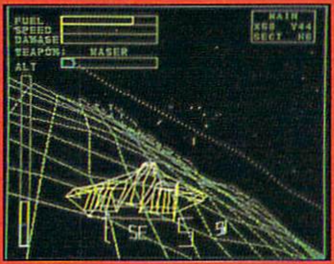
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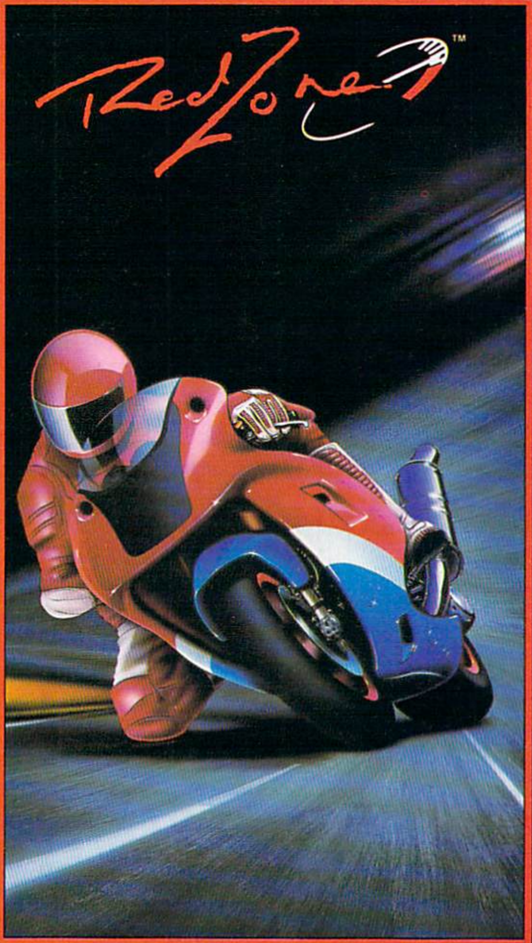
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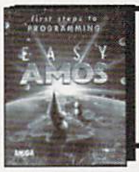
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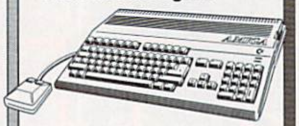
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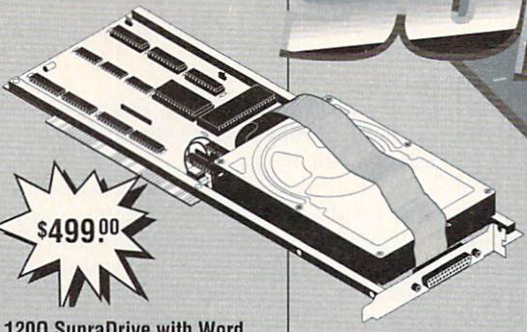
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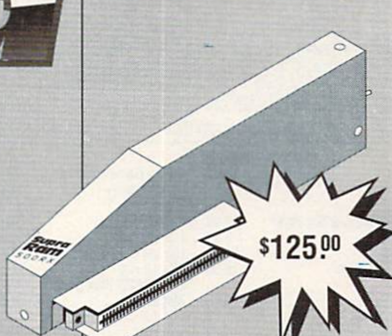
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From p. 72.
playbooks, blocked kicks, and even an end-zone celebration dance. After you wade through all the glitz, however, you'll notice the game forgets the basics.

Consider a few examples: I'd be totally absorbed in the action, twisting and bending my poor joystick unmercifully in the attempt to guide a running back through a maze of tacklers, when a key blocker would just stand still or, even worse, run in the opposite direction. High-percentage passes into the flat are not completed most of the time, even if the computer makes the play, and I've seen more consistent pass catching by blindfolded players! The game is modeling *professionals*, right?

The heart of JMF is its complex and comprehensive play calling. The game makes an honest effort to make the process as painless as possible, but I have gripes here, too. To begin a play, you must determine the set, formation, and play for offense and defense. Available options are scrolled in three windows, and you select each category with a series of precise joystick movements and firebutton presses.

On offense, there are six possible pro sets, five formations for each set, six plays for each formation, and three audibles per team. Defense is just as complex. The window-choosing routine is also used to select which pass receiver is to catch the ball. This sounds reasonable until you realize that you, as quarterback, must scan the three windows as the play unfolds, determine who appears most open, and then use a precise joystick sequence to select a receiver. As the game switches back to full-screen, you must pick up the receiver and guide him to the ball.

The good news is that as you're learning the game, you can allow the computer to control both the quarterback and the receiver selection. Unfortunately, that's when the basic ineptness of the players becomes apparent. ►

CRIB NOTES

From p. 72.

This wasn't pure delinquency; if you make it, a jet of water will blast you up to the top level of the caves. Head right again, blowing your way through the door, and when you come to stairs leading up and left, take 'em. (Head left just for the fun of it; you're now on the right side of the broken span.) Heading right—noting the dry spillway—you'll find yourself earning code KCIJ and a view of your alien chum being tossed into a narrow chamber below you; he's trying to escape through the floor and not having an easy time of it. Maybe you could help from below, eh?

Back down the stairs and to the right, you'll find a room with hanging chandeliers. Venturing about halfway down the screen will trigger the appearance of a guard. Drop to one knee and nail him, and, back at the screen's left side, shoot the biggest of three lamps. (If you go back to the upper level, you'll see your pal has vanished.) From the chandelier room, head right until you run into a guard who knocks you down and separates you from your pistol.

When he grabs you, you can kick him...well, where it counts, OK? Speed is of the essence here: Get your gun as quickly as possible—roll over it to collect it—and don't waste time blasting him as you come up. Continuing right, you will find yourself in that least lovely of tactical situations: crossfire from guards left and right. You can't match firepower with them, so put up shields and concentrate on the right-hand guard, as this is the way you're heading. (You can also just bull your way right into the next screen to earn the code ICAH.)

If you're successful, you'll find yourself looking across a pool. Water. Deep water. Hey, no one said anything about *swimming*.

Next time, we'll wrap up Out of This World and start in on some of the tough spots in Ultima VI: The False Prophet. Meanwhile, if you need help with a game—and no, getting the cellophane off the box is not a legitimate problem—you can reach me at 25 Belmont Ave., Madison, NJ 07940, on GEnie and Portal at PETEROO, on CompuServe as 74160,3053, and via Usenet at Peteroo@cup.portal.com. □

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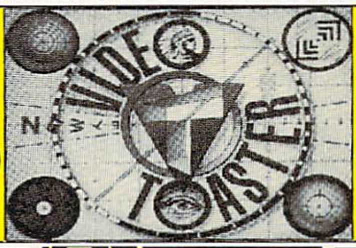
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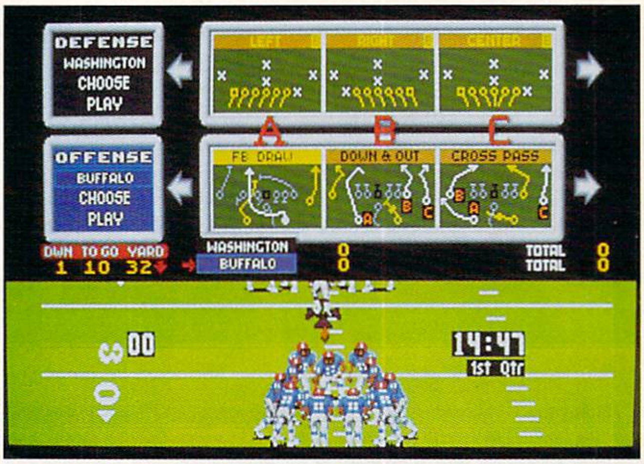
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Is anything missing? Yes, like the Jets, Raiders, Colts, Lions, Cowboys, Saints, Cardinals, Bucs, Seahawks, Chargers, and Brownies. At least the other 16 teams are available, not to mention the all-Madden team of all-stars. This wouldn't be too hard to swallow if you could somehow modify the teams and players, but you can't.

Pro football is a very fast and complex game, and JMF attempts to simulate that excitement and complexity. Because there's no beginner or amateur modes, rookies will initially have a rough time just completing a pass or generating a long run. Everything happens so fast, even on defense, that you'll be hard-pressed to make correct or reasonable play selections. So until you become extremely proficient at manipulating the controls, recognizing formations, and selecting correct plays, you can forget about beating the computer.

On the other hand, if you can square off against a human opponent, JMF does provide the best all-around football game yet for the Amiga. Hey, just imagine that those guys in uniform are from the old World Football League.

SHORT TAKES By Peter Olafson



Pacific Islands

The only thing really wrong with Team Yankee, *Empire*'s splendid tank game, was that there were just five scenarios. That has been admirably remedied in the follow-up, for Pacific Islands ($49.95) has 25. ►

MORE SHORT TAKES

Here, renegade Soviet communists, backed by North Korea, have invaded the atoll of Yama Yama. It's the same basic game system plugged into a larger environment, with more missions and new weapons and buildings. If you liked the first game, well, here's more of it.

The sequence of missions is no longer linear, and you can now draw on a $55 million budget to buy your weapons and supplies. Happily, Team Yankee's main innovations—the four-way, split-screen views and the pleasant mixture of polygon and bitmapped graphics—remain intact. And there's not a tank out there that burns as cheerfully as a Pacific Island tank.

ORK

Nanu-nanu. I was ready to write off Ork (*Psygnosis*, $49.99) as another passionless exercise in arcade perfection. Boy, was I wrong. This is a fascinating platform adventure, with a Shadow of the Beast II feel (in the puzzles and graphics), Psygnosis's usual peerless parallax scrolling, and sprites that appear to have been carved from limestone. And there's a lot more to these five trials by fire than immediately meets the ear: jet-packs, item identification, a scanner to generate a local map, and so on. (It also comes with a hintbook.) The game played wonderfully on the A3000, but booted in PAL mode (with the screen-bottom inventory invisible) on the A500. Otherwise, good show.

SUPER SPACE INVADERS

A deluxe edition of the hoary arcade classic, Super Space Invaders (*Domark*, $39.95) comes wrapped in animations, jazzy graphics, sound effects, and extra features. The trouble is that...well, it's still Space Invaders, the shoot-'em-up as conga line, and the delightful little game that launched a bazillion quarters seems overwhelmed by tinsel. Sure, it has end-of-level bosses, multiple alien configurations and more, but what's the point, please? Space Invaders's great asset was its mindless simplicity, and that's vanished. Someone at Domark should just have said "no" out of respect for history.

VIKINGS: FIELDS OF CONQUEST

An overhaul of Kingdoms of England, Vikings: Fields of Conquest (*Realism Entertainment*, $59.95) keeps the brains of the original and leaves the archery tournaments and raiding parties locked up in the dungeon.

Vikings is still pretty (its 64-color screens glow like watch fires), but the focus has changed. It's a pure rule-the-world strategy and resource-management game—the world being medieval England and its environs—throwing food supply, mineral surveys, a raw-materials market, sea travel, and recruitment of locals into the matrix . Those elements, combined with a regiment of bloody-minded computer opponents, make this essential stuff for those who would be king...or queen.

BRAVO ROMEO DELTA

You have to hand it to *Free Spirit*: It hasn't tried to make the unthinkable palatable with animations and sound effects. A nuclear war game, Bravo Romeo Delta ($59.95) has crude eight-color screens, virtually no sonic enhancements, and a copiously footnoted manual that sometimes reads more like a textbook.

The premise: Soviet forces launch a limited nuclear strike during a naval exercise, and your duty (as the finger on US or Soviet icons) is to keep a level head as you respond.

The concept is a bit dated, but the game is quietly riveting and the lack of sound only reinforces the appropriate bunker mentality. I pulled out a narrow and sobering victory—only 2.3 million dead.

THE FOUR CRYSTALS OF TRAZERE

Apart from the silly name (in England it was simply called Legend), The Four Crystals of Trazere (*Mindscape*, $49.95) is quite good. It's equipped with a wonderfully creative spell-making system and lots of puzzle rooms that rely heavily on your ingenuity. Play is fast and fluid, animation in the isometric dungeon and fight sequences is superb, and while combat is a challenge to control, characters do a good job of staying out of each other's way.

Quibbles: The puzzle element isn't quite prominent enough to conceal Trazere's identity as a find-the-keys hack-and-slash. Moreover, this is really just the European version with new title screens and an English-only manual, meaning that the PAL screens are pitched about a half-inch too low, making the bottom line on the screen next to unreadable. It also doesn't go on hard disk. (Boo-hiss.)

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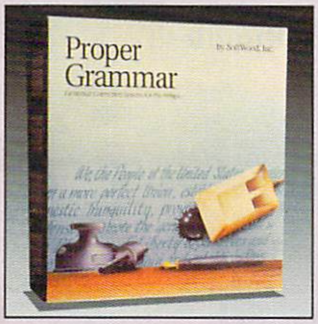
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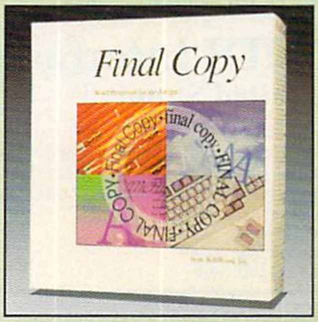
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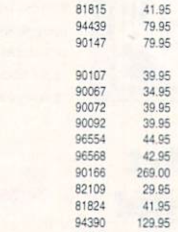
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Best Seller

DD79abcd: Amiga "C" Tutorial - This is the most comprehensive C language--*Amiga oriented*--set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples on every topic on Amiga programming. 4 disk set, counts as 3.

New Disks

VO9: 24-Bit - Contains Rend24 which allows you to proof Toaster-generated 24-bit animations. Also contains utils to convert IFF's to IBM VGA/Windows readable format. Also contains latest release of JPEG->IFF converter.
VO8: CompuGraphic Fonts - Contains 2 clipart-style fonts and 4 actual typefaces for use with WB2.04 and it's Fountain utility. Great for desktop publishing and/or video projects.
VO7: StarTrek Objects - Contains the USS Reliant, NCC-1701D (the Enterprise from Star Trek:TNG) and a Ferengi Marauder ship. Also contains a fully detailed Porsche 911 and Apache Attack Helicopter. Imagine format.
VO6: Modelling Objects - Contains 20 vector objects in Imagine format. These are perfect for use with VO5 or your favorite 3D modelling program. Includes Amiga 3000, space station & many more!
VO5: Modelling - Vertex allows you to create 3-D objects without using the abstract X, Y and Z views. Loads Sculpt-3D/4D, Turbo Silver, Imagine, LightWave, GEO and Wavefront formats. MagicTween will metamorphasize any two pictures by automatically animate the "in-between" frames.
V04: Video & Anim - Video_DB will catalog all of your videotapes. Slate is a sharp graphic of a slate for your productions. CyroUtils splits, makes and gives info about ANIMs. RTAP lets you play large ANIMs on small memory machines.
V03: Image Utils - let VideoToolsOnTap let you tap into the video power of your Amiga for fades, color and greybars as well as a plethora of other indespensable video functions. TitleGen will do professional crawling titles. JPEG converts JPEG-> IFF with amazing compression. ImageLab performs special effects on IFFs.
V02: Stillstore - Used to create the "over the shoulder" graphic inserts ala the 11:00 news.
V01: Graphics - Picbase will let you view and track ALL of your IFF pictures over all of those floppies! Freepaint is a Deluxe-Paint workalike. Agraph is a powerful utility to produce snazzy graphs.
FD82: Intrepid - In the Arctic ice, you control a tank on a mission to rescue hostages in this superbly crafted Amiga origional.
FD81: SuperGames - Some of *the* best games--Donkey Kong is better than the origional *with an extra level*! Frantic Freddie and TrailBlazer are both fast-pased arcade games. Mad Bomber is the classic game of "Kaboom" redone with an Amiga flare. All of these games are excellent!
FD80: Technoban - If you like logic puzzles, this disk is for you! Create your own puzzles with the built-in editor or play the many pre-made ones. Requires Fat Agnus (1MB of Chip memory).
FD79: Addams Family Quiz - They're delightfully creepy and spooky and now they're in your Amiga! Classic digitized graphics and sound samples make this a real crowd-pleaser. Wait till you "talk with Cousin Itt!"
FD78: Potpourri - Lothian is a great Ultima-type adventure game with great graphics. Rocky is a remake of the classic Boulderdash.
FD77: Arcade Series - Galaga'92 is a clone of the arcade game of the same name with several gameplay enhancements--with smooooth, sharp graphics, it's better than the origional! Pharaohs Curse is a clone of the origional C64 classic. Diplomacy is a beautifully computerized version of the Avalon Hill board game--conquer or be conquered! Galaga requires 68020+
FD76: Catacomb - is a full graphic dungeon adventure game with beautiful graphics and a very slick icon/mouse driven interface.
FD75: Arcade Series - Descender is a clone of the classic arcade game "Tempest"; complete with vectorized graphics. Tanx is the classic battle of trajectories and inertia between two tanks—incredibly well done! Search is a maze game unlike any other—included is a level editor too. (Tanx requires 1 meg chip memory=Fat Agnus)
FD74: Arcade Series - RingWar is an "Outer Limits" clone with vectorized graphics. MotherLode is a "Lode Runner" clone with 50 levels! In BlitzTanks, they're coming at you from all directions!! Call in air strikes and use your heavy artillery to survive!
FD73: Arcade Series - Intruder Alert! is a MULTI-level "Berserk" clone. Features smooth gameplay, great graphics & digitized sound f/x.
FD72: Sword of the Warlock - This is a demo version of a great public domain graphic dungeon adventure game. The adventure spans three diskettes and allows two players to go adventuring. The game has a 'Bards Tale' feel to it. Three disk set, counts as 2. Requires 1 meg of RAM and 2 floppy drives or HD.
FD71A&B: Star Trek: TNG Trivia Challenge - So you think you know The Next Generation, huh? Complete with fantastic sampled sounds and digitized images, this game even looks and sounds like a genuine Star Trek terminal! VERY thorough and complete! Counts as 2 disks.
FD70: SpaceGames - Contains AmiGoids, >finally!< an Asteroids game that takes advantage of the Amiga—totally configurable with great sound and grpahics. In Cosmostruction the object of the game is for each Cosmostruction team to acquire the most points while construction energy ducts between the space station and planetoids.
FD69: MindGames - Had enough of shoot-em up games? Relax and let these 21 games exercise your mind instead of your wrist.
FD68: Potpourri - Eternal Rome is a strategic simulation of the Roman Empire including military, diplomatic, political, economic and social factors. Lord of Hosts is a board strategy game for 2 players. In Moonshine, you've got to get the hootch across the state line—a great rolling, scrolling driving game!
FD67: Arcade - Includes Llamatron a well-done 'Robotron' clone. Hate is a "terrific" commercial grade Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!
FD64: Games - Wizzy's Quest - a "great" 50 level game with great graphics, Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game; 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip)
FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Requires 1 megabyte of memory.

Special Product!

QT1: The A64 Package - A very complete Commodore 64 emulator. Supports any CPU and is fully compatable with WB1.3 & 2.0. This version includes a special adaptor that will allow you to connect your 64's 1541 disk drive to your parallel port of your Amiga for total emulation. Two disk set, counts as two. Special price $49.95 - including hardware.

WB118: Amiga Beginner - You asked for it! A tutorial for the beginner on using your Amiga! Covers the CLI and Workbench, it's great for learning about the Amiga. Also contains numerous *beautiful* 16-color icons for WB 2.0
WB117: Religion - Contains Scripture_Mem (aids in memorizing verses and passages) and in Pauls Journey, you are Paul of Tarsus exploring the Mediterranean and preaching just as Paul did. Req. 1 MB RAM.
WB116: Databases - This is what you've been waiting for! Contains 5 uniquely specialized dtabase programs for tracking: Videotapes, CD's, Magazine Articles, Comic Books and Trading Cards!
WB115: Term - If you have AmigaDOS 2.04 and a modem, then this is *THE* program for you. Term *totally* conforms to the User Interface Style Guide for 2.04, has an ARexx port, and supports all popular file-transfer protocols through XPR libraries. We wish all programs were written to this caliber.
WB114: Fonts #4 - Contains 36 bitmap system fonts.
WB113: Sid II - Why pay 40 bucks for a directory utility, when this one will do it all plus much more! A truly professional-caliber program. Sid 1 was our best, now *completely* rewritten, Sid 2 will undoubtedly astound you.
WB112: Productivity/Business - Stock Analysis allows automated downloading of stock data with full analysis capabilities (requires modem). SubStore will allow you to log magazines and articles with full search/scan/print capabilities.
WB111: Cellular Automa - Straight from the pages of the January 1990 issue of Scientific American, this electronic model will allow you to simulate cellular circuits.
WB110: Electronic Baby Book - Immortalize your children on your Amiga! Tracks everything about your newborn—first steps, words, tooth, birthdays, X-mas, friends, etc—even space for a digitized photo!
WB109: VerseWise - Display, search and output The New Testament to text files or your printer.
DD86: The Programmer - Includes GadTools and REQTools which will allow you to create your user interfaces and then the program will automatically generate "C" source code or Assembly-code--saving you countless hours of work! Requires, and writes code for, AmigaDOS2.04.
DD85: AnalytiRIM - Tis incredible program is a combination of a powerful spreadsheet and a Relational Information Manager (database). Not for the faint of heart, this is a heavy-duty package! Req. 1 MB RAM.
DD84: Proteus BBS - This disk contains the full-blown version of the Proteus BBS software. Totally configurable & ultimately powerful. Requires a hard-drive, ARexx and at least a meg of memory.
DD83: IBM - Not one, but *TWO* IBM emulators that will allow the running of MS-DOS software *with* Amiga programs!!! Comes complete with programs to turn your Amiga floppy drives into 720K IBM compatable drives.
DD82: Unix - Contains a working demo of Minix - a Unix workalike. Minix is system call compatable with V7 of Unix.

Fun Disks

FD5: Tactical Games - BullRun - a Civil war battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.
FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: Pacman - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.
FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!
FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great graphic interface. Play time several weeks!
FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.
FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).
FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.
FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.
FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.
FD26:Arcade Games - Marble_slide is a commercial quality game—similar to a Lucas game named PipeDreams, excellent playability and entertainment. Mutants—a small version of the same arcade game. SuperBreakout is a Pong/Arkanoids type game.
FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.
FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.
FD31: Games! - Air Traffic Control - a good ATC simulation, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.
FD32: Flight Simulator - An instrument flight simulator for a DC10.
FD33: Arcade Games - Ffreddy a Mario Brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and Wetroids a wonderful version of asteroids with a hilarious twist.
FD35: Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks.
FD37A&B:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.
FD38: Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.
FD39A&B: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Excellent!!! Counts as two disks. Requires 512k
FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new Amiga 9000. Most of all, don't forget to stay alive...
FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.
FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.
FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.
FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.
FD56: Arcade - Includes SpaceWar. HueyRaid is a well done helicopter arcade game. PowerPong's a great expanded pong game.
FD57: Arcade Games - Includes 2 truly commercial quality games. MegaBall, an Arkanoid-ish game, features 5 musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadellic trip through several different worlds—each distinctly different.
FD58: GAMES! - Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.
FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate word-search puzzles for any Epson compatable printer.
FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?
FD61: Games - Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or bekilled game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.

Workbench Disks

WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program. Comm (1.34) - Latest version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220
WB5: Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.
WB6: Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).
WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.
WB9: Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.
WB10: Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus III.
WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A

must have!
WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.
WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.
WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.
WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP!
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.
WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to do harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.
WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.
WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything.

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WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.
WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), , Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!
WB35: 3D Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!
WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection. Requires 2 drives or HD.
WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program. Version 3.20, which is compatable with WB2.04.
WB43: Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!
WB46: Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.
WB47: Clip Art - HighRes clip art with the following motifs - hair, drafting, summer, animals and macfood.
WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49ABC:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!
WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.
WB53: Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. C-Light is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...
WB54: Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio -a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.
WB55: Application - XCopyIII - a full featured disk copier, make backups of copy protected disks. RoadRoute - find the quickest route from one city to another, highway description included. Diary - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.
WB57: Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.
WB61: Intermediate Utilities - Includes programs to help to drasticaly decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.
WB62: Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.
WB63: Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.
WB66: Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.
WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.
WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.
WB70: Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program, open the door to the libraries of Adobe and PostScript fonts! Calendar - month templates in PageStream form. Post - a full featured postscript file display and print utility.
WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.
WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility, SSS - this screen capture program can grab almost any screen including games, Today - a personal calender, Tarot - fortune teller, and Grammar - grammar checker.
WB79: Home & Business Accounting - Includes Ckbacct - the most complete checkbook accounting program going, LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse, Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.
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WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a guru-buster)and PrintStudio.
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WB99: Lifestyles - Includes AGene—family tree program that tracks up to 600 people/marriages/etc. Landscape is a CAD program to create gardens/landscapes. Loom simulates an 8 harness loom; experiment with pattern design in an instant feedback environment.
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WB106: Home Manager - This is a great all-in-one address book with an autodialer/notepad/to-do list/appointment scheduler/home inventory database and phone number dialer.

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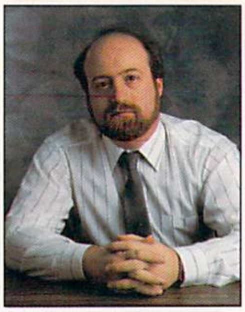
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HELP KEY

Enlivening startup screens, installing 2.0 on hard disk, reluctant games on the A3000, and help with Imagine.

By Louis R. Wallace

Jazzing Up the Startup

Q. *I am the proud owner of an A2000HD, but I am tired of the same boring start-up screen. I wonder if there is any way to show a graphics screen or short animation during system startup? Also, I have heard a lot about the new 2.0 Workbench operating system. If I were to upgrade to it, does that mean I would have to format my hard drive to install 2.0? If so, exactly how is it done?*

J. Franklin
Findlay, Ohio

A. It is a fairly simple task to have a picture or animation shown on system startup. Merely add a command to your startup-sequence (found in the S: directory) that displays a picture or plays an animation. Depending on the display program you use, the picture or animation can be put up for a set period of time or until some user interaction (such as a mouse click or keypress) occurs. However, the best way to add a picture is to use one of the screen utilities—such as WBPicture, which is part of the PD package NickPrefs, by Nicola Salmoria—that enables you to display a picture as part of the Workbench screen itself. NickPrefs, which is an AmigaDOS 2.0-only set of programs, also has a preferences utility that can give you an animated "busy" pointer.

For users of AmigaDOS 1.3, there are a variety of other such utilities for displaying a picture on the Workbench screen; names like Tapestry, Backdrop, and DropCloth come to mind. All of these can be found on the usual on-line services like Portal, GEnie and CompuServe, as well as in user's-group libraries and disk collections like those of Fred Fish.

As far as installing AmigaDOS 2.0 on a hard disk with an existing 1.3 OS, it is generally a good idea to reformat your old disk before installing 2.0. In fact, the 2.0 installation documentation instructs you to back up your old disk and reformat during the 2.0 installation. Of course, you must be careful when you restore your programs to copy only applications and data, and not the old 1.3 OS!

The actual installation of 2.0 to your hard disk is basically an automatic procedure; all you have to do is follow the on-screen prompts. Of course, you must have the new ROM chips installed. Depending on your technical prowess, this may be something you can do yourself; or it may require a trip to your local service center.

A3000 Game Trouble

Q. *Help! I have recently upgraded from an A500 to a brand spanking new A3000, and I love all the power its fast 68030 and multi megabytes of RAM offer. My problem concerns my collection of games. While some of them run fine, others work only partially, and some won't run at all. Since the A3000 doesn't have a 68000 to fall back on in such circumstances, I was wondering if there is any software fix, hack, or utility I can use that would allow at least some of these games to work.*

M. Harkin
Sebring, Florida

A. There are a couple of things you can do. First, some older games just don't like fast memory. You can try using the NoFastMem program (usually found in your System drawer) to disable all your extra memory. Then, if the program can be started from the CLI or Workbench, try running it using only the remaining chip RAM.

Or, if you have access to older Kickstart disks and your A3000 is running Kickstart from disk and not from ROM, it is possible to boot using another Kickstart besides 2.0. This is how the earlier A3000s worked, allowing you to decided on power-up which version of the OS you wanted to use. You can make the selection by holding down both mouse buttons when you first power up the A3000. This gives you a menu that offers both 1.3 and 2.0 Kickstart, along with options to load them from either hard disk or floppy. If you are not sure if your A3000 offers this option, hold down the mouse buttons the next time you power up your computer and see what happens.

Another approach is to use the PD utility Degrader, by Chris Hames. This program allows you to turn off fast memory, intercept privileged instructions generated by CPUs more advanced then the 68000, reduce the amount of chip RAM, turn off CPU cache and burst modes, and force either PAL or NTSC displays. Its results can be made to survive one or more warm reboots, too, making it useful for programs that work only when the software is booted from its own floppy. Degrader doesn't always help, but I have used it to successfully run several programs that just wouldn't work before. You can find Degrader on most BBSs and telecommunication networks, as well as in disk collections like Fred Fish.

Mysteries of Imagine

Q. *I recently bought Imagine 2.0, but I am having some difficulty learning to use it. Do you know of any books or other support for those of us just getting into it?*

J. Byron
Gainesville, Florida

A. One of the best sources of help for Imagine is the book *Understanding Imagine 2.0*, by Steven Worley. I have been told by many people that it is a wonderful source of assistance. You can also find help via your telephone on the on-line networks. Most of them have special-interest groups that lend assistance to one another. For example, Portal has a very active Imagine group where you can find help, 3-D objects, and many examples of work done with Imagine. ■

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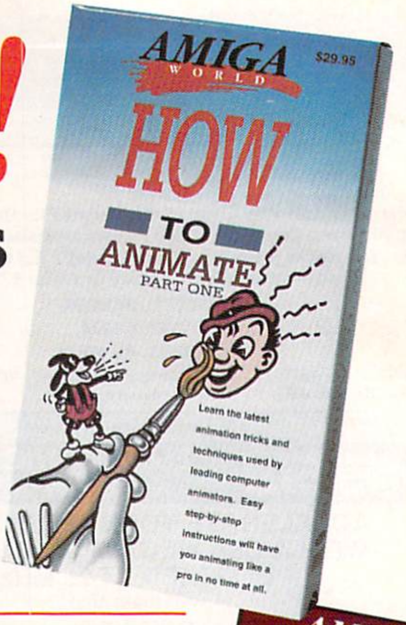
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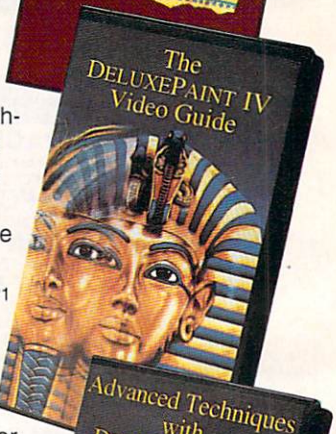
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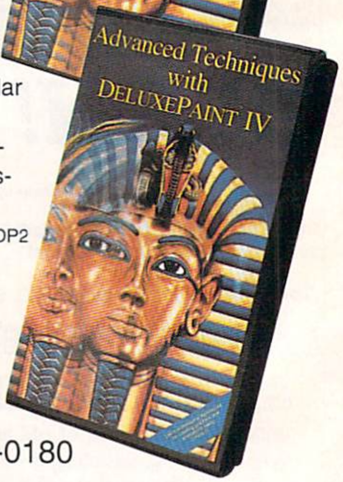
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THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

CanDo Did It

As a point of information regarding the item concerning The Dynamic Spine in July's Overscan (p. 14), the program was authored using CanDo, not AmigaVision, in spite of the positioning of the workstation at the World of Amiga in New York last April. Not only did we write the program in CanDo, but Eddie Churchill of INOVAtronics was instrumental in its completion, and we are sincerely grateful for Eddie's help and that of the rest of the INOVAtronics staff.

Patrick Coughlin
Philadelphia, Pennsylvania

Dongle Dilemma

With regard to Steven Blaize's review of Caligari in the July issue (p. 20), he complains of the program's dongle, saying that "professional software has not had hardware copy protection in years." Well, this just isn't true. In fact, the latest release of AutoDesk's 3D-Studio (which is *the* 3-D rendering and animation program for the IBM platform) requires a device to be plugged into the parallel port in order for the program to work. Also, it has become almost a requirement with European distributors that professional (and thus expensive) software packages come with dongles to control piracy. I'm not defending dongles, as I think they're a pain, but I can see Octree's concern, and we should all realize that they're not alone.

James Schroder
Brooklyn, New York

Soupin' Up the A500

Impressed with your "Ultimate Amiga" article (August, p. 25), I decided that instead of buying an A3000, I'd do a major upgrade on my A500. My two major reasons were that I wanted to prove that the A500 is not dead with the release of the 3000, and that I wanted complete downward compatibility with all of my software, which the 3000 doesn't provide. So I bought a 4MB baseboard, Switch-it, 2.04 ROM, Super Denise, a 1MB ECS Fatter Agnus, Flicker-Free Video, a 33-MHz 68030 Mega-Midget Racer, a 68882 math chip, 512 SRAM, and a multisync monitor. I now have an A500 to rival any stock A3000, with complete downward compatibility.

As much as I'd like to say that turbocharging my 500 was a breeze, it wasn't, and I'd probably have gone crazy without the incredible help, patience and knowledge of CSA, in particular Steve Riker.

I want to thank *AmigaWorld* for its excellent reviews and information, *AmigaWorld* readers for their helpful comments, and CSA for its super help in turning my computer into a speed demon!

Jeff J. Bishop
Colville, Washington

> **"The Toaster's new 'Kiki' wipes, however, are setting women back 50 years."**

Confessions of a Desktop Publisher

I have a desktop-publishing business that does work primarily for the entertainment industry. I must confess that a while ago my eye began to wander. In a world dominated by Macs, it was hard not to be tempted by their software features and support, and I began to think of leaving my ever-loyal A3000.

Now I realize it is darkest before the dawn. I'm happy to say that thanks to all the recent outstanding improvements in programs such as Professional Page 3.0 (Gold Disk), Art Department Professional 2.0 (ASDG), and OCR 1.11 (Migraph), I have reconsidered. I will wander no more.

Mike Pike
West Hills, California

Getting No Kick Out of Kiki

NewTek's Video Toaster 2.0 has no doubt created a "paradigm shift" in the industry, just as the ads are claiming. I use the product and find it spectacular. The Toaster's new 'Kiki' wipes, however, are setting women back 50 years.

Every new male wipe features men in action sports. Each new female wipe, the touted "KikiFX," splays NewTek's spokeswoman across the screen in suggestive poses. One must ask, "Who is this Kiki, and where is her pride?"

Today, even the TV medium treats women as more than sexual objects. NewTek, it's time to enter the 1990s.

Jane Mahoney
Providence, Rhode Island

Perfect Final Copy

I want to congratulate and thank Softwood for their outstanding work on their word processor, Final Copy. When I bought Final Copy a few months ago, I was overwhelmed by the quality of the output on my CBM MPS-1270. I did not expect my cheap printer to do wonders! When I did have a problem, I called Softwood's customer support. Then, three updates later, I rejoiced with a version 1.3.2 running perfectly. The support offered by Softwood is marvelous. The program still needs a little work on font readability, but otherwise it is perfect.

Daniel Migueres
Rock Hill, South Carolina ■